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# Exploring the concept and practices of team creativity through a critical incidents approach

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**Exploration du concept et des pratiques de créativité  
d'équipe à travers une approche d'incidents critiques**

**Exploring the concept and practices of team  
creativity through a critical incidents approach**

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EXPLORING THE CONCEPT AND PRACTICES OF TEAM CREATIVITY

THROUGH A CRITICAL INCIDENTS APPROACH

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## DECLARATION

In accordance with the Bangkok University Honor Code, I certify that my submitted work here is my own work and that I have appropriately acknowledged all external sources that were used in this work.

Date: 14 December 2023

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## ABSTRACT

Team creativity has emerged as a crucial driver of business success in recent years. The ability of a team to collaborate in a creative manner, generate innovative ideas, and solve complex problems holds tremendous significance in today's dynamic and highly competitive business environment. Respected scholars and industry experts have unveiled a host of key factors that underpin team creativity. This study presents an exhaustive exploration and synthesis of the principal dimensions and factors that define team creativity.

To accomplish this, we conducted a rigorous Systematic Literature Review, precisely analyzing 193 selected references on the subject matter. Through the application of the Input-Mediator-Output (IMO) team effectiveness framework (Matthieu, 2008), we classified an extensive collection of 274 team creativity factors obtained from these references. To enhance comprehension of the existing knowledge pertaining to team creativity, we developed a comprehensive taxonomy called the "Team Creativity IMOT model (TCIM)."

Our investigation also brought to light a methodological gap in the field. Quantitative surveys emerged as the dominant research approach, accounting for 145 out of the 193 studies conducted on team and group creativity. This dominance, however, highlights a dearth of qualitative research designs and practical insights. Many of these studies neglected to explore the most critical factors of team creativity in real-world contexts, including those that are situation-specific and contextual. Consequently, we required the perspectives of 33 team leaders from Thai organizations from diverse fields, encompassing both creative and other industries, to ascertain the factors they deemed most important for team creativity. By aligning theory with real-world practices, we conducted interviews that revealed a comprehensive list of factors deemed essential for fostering team creativity.

These identified factors were subsequently compared to the Team Creativity IMOT model (TCIM) derived from our extensive literature review. Team Creativity factors were identified through 2 lenses, including, Factors that positively/enhance team creativity, Factors that negatively/hinder team creativity. When referring to "influencing team creativity," this research discussed the positive and negative factors that we have studied.

The findings demonstrated that factors such as team composition, team creative process, motivation, team leadership, and psychological safety were consistently perceived by team leaders as paramount for enhancing team creativity. However, factors outside team control, poor leadership, lack of team creative process, bad team composition, and specific context constraints in Thailand were perceived by team leaders as top factors for hindering team creativity. Furthermore, the results revealed

significant insights into the varying factors that influence team creativity across different industries, including those classified as creative and other.

However, the Team Creativity IMOT Model (TCIM) did not provide a detailed understanding of the enablers and hinderers the team's creative process within its specific context. Thus, we conducted in-depth interviews using the Critical Incidents Technique (CIT) to gather information on participants' experiences in successful and unsuccessful creative projects. The purpose was to identify critical events that occur during the team creativity process. The CIT interview method was rarely employed in team creativity research. However, for this research, the CIT approach was chosen to examine the team creativity process, which varies based on the specific context and situation. Thai team leaders were asked to share details or stories of significant incidents, which were analyzed to identify common themes and patterns.

In our research, we have made a clear distinction between Team Creativity IMOT factors and Critical Incidents. Team composition, leadership, and culture represent factors that organizations can purposefully plan, design, and manage to foster creativity within teams. These deliberate factors play a vital role in shaping a creative environment within a team, contributing to its long-term creative potential.

On the other hand, Critical Incidents, such as the unexpected impact of constraints or disruptions in team dynamics, are unexpected events that have immediate, short-term effects on team creativity. These incidents often arise unexpectedly during the creative process, leading to innovative problem-solving as teams adapt to unforeseen limitations. It is crucial to recognize that the influence of critical incidents on team creativity is context-dependent, influenced by the specific situation and the way these incidents are managed. This distinction underscores the

complex interplay between factors that can be intentionally influenced and unanticipated incidents, blurring the line between planned and unforeseen contributions to the creative process.

Overall, managers can leverage these results to boost team performance and cultivate an environment conducive to creativity by prioritizing the most important factors. The Team Creativity IMOT model (TCIM) offers a valuable structure for upcoming research projects that aim to explore team creativity. Future studies can delve into the complex interrelationship of various factors and how they collectively affect the creative output of a team. Moreover, analyzing the contexts of critical incidents can provide a deeper comprehension of a particular situation that occurred during the team's creative process. Further research could concentrate on developing comprehensive guidelines for teams to effectively combine diverse factors and maximize their creative potential.

By doing so, organizations will gain a deeper understanding of the key factors and specific contexts that drive team creativity, thereby enabling them to unlock the full creative capabilities of their teams and propel their overall success.

**Keywords: Team creativity, Critical incidents, Creativity, Taxonomy, IMOT, Factors, Thailand, Creative Industries**

## RÉSUMÉ

Ces dernières années, la créativité des équipes s'est imposée comme un moteur essentiel de la réussite des entreprises. La capacité d'une équipe à collaborer de manière créative, à générer des idées novatrices et à résoudre des problèmes complexes revêt une importance considérable dans l'environnement commercial dynamique et hautement concurrentiel d'aujourd'hui. Des chercheurs respectés et des experts de l'industrie ont dévoilé une série de facteurs clés qui sous-tendent la créativité d'une équipe. Cette étude présente une exploration exhaustive et une synthèse des principaux facteurs et dimensions qui définissent la créativité d'une équipe.

Pour ce faire, nous avons procédé à un examen systématique et rigoureux de la littérature, en analysant avec précision 193 références sélectionnées sur le sujet. En appliquant le cadre d'efficacité d'équipe Input-Mediator-Output (IMO) (Matthieu, 2008), nous avons classé une vaste collection de 274 facteurs de créativité d'équipe obtenus à partir de ces références. Afin d'améliorer la compréhension des connaissances existantes en matière de créativité d'équipe, nous avons développé une taxonomie complète appelée "Team Creativity IMOT model (TCIM)".

Notre enquête a également mis en lumière une lacune méthodologique dans le domaine. Les enquêtes quantitatives se sont révélées être l'approche de recherche dominante, représentant 145 des 193 études menées sur la créativité des équipes et des groupes. Cette prédominance met toutefois en évidence une pénurie de modèles de recherche qualitative et d'idées pratiques. Nombre de ces études ont négligé d'explorer les facteurs les plus critiques de la créativité d'équipe dans des contextes réels, y compris ceux qui sont spécifiques à une situation et contextuels. Par conséquent, nous

avons sollicité les points de vue de 33 chefs d'équipe d'organisations thaïlandaises issus de divers domaines, englobant à la fois des industries créatives et d'autres industries, afin de déterminer les facteurs qu'ils considèrent comme les plus importants pour la créativité d'une équipe. En alignant la théorie sur les pratiques du monde réel, nous avons mené des entretiens qui ont permis de dresser une liste exhaustive des facteurs jugés essentiels pour favoriser la créativité au sein d'une équipe.

Ces facteurs identifiés ont ensuite été comparés au modèle Team Creativity IMOT (TCIM) issu de notre analyse documentaire approfondie. Les facteurs de créativité dans l'équipe ont été identifiés sous 2 angles, les facteurs qui favorisent/renforcent la créativité de l'équipe et les facteurs qui nuisent/entravent la créativité de l'équipe. Lorsqu'il est question d'"influence sur la créativité de l'équipe", cette recherche aborde les facteurs positifs et négatifs que le chercheur a étudiés.

Les résultats ont montré que des facteurs tels que la composition de l'équipe, le processus créatif de l'équipe, la motivation, la direction de l'équipe et la sécurité psychologique étaient systématiquement perçus par les chefs d'équipe comme essentiels à l'amélioration de la créativité de l'équipe. En revanche, les chefs d'équipe considèrent que des facteurs échappant au contrôle de l'équipe, une mauvaise direction, l'absence de processus créatif au sein de l'équipe, une mauvaise composition de l'équipe et des contraintes spécifiques au contexte thaïlandais sont les principaux facteurs qui entravent la créativité de l'équipe. En outre, les résultats ont permis de mieux comprendre les différents facteurs qui influencent la créativité des équipes dans différentes industries, y compris celles classées comme créatives et autres.

Cependant, le modèle Team Creativity IMOT (TCIM) ne permettait pas de comprendre en détail les facteurs qui ont favorisé ou entravé le processus créatif de

l'équipe dans son contexte spécifique. Le chercheur a donc mené des entretiens approfondis en utilisant la technique des incidents critiques (CIT) pour recueillir des informations sur les expériences des participants dans des projets créatifs réussis et non réussis. L'objectif était d'identifier les événements critiques qui se produisent au cours du processus de créativité de l'équipe. La méthode d'entretien CIT a rarement été utilisée dans la recherche sur la créativité en équipe. Cependant, dans le cadre de cette recherche, l'approche CIT a été choisie pour examiner le processus de créativité en équipe, qui varie en fonction du contexte spécifique et de la situation. Les chefs d'équipes thaïlandais ont été invités à partager des détails ou des récits d'incidents significatifs, qui ont été analysés afin d'identifier des thèmes et des schémas communs.

Dans notre recherche, nous avons établi une distinction claire entre les facteurs IMOT liés à la créativité de l'équipe et les incidents critiques. Par exemple, la composition de l'équipe, la direction de l'équipe et la culture représentent des facteurs que les organisations peuvent délibérément planifier, concevoir et gérer pour favoriser la créativité au sein des équipes. Ces facteurs délibérés jouent un rôle essentiel dans la création d'un environnement créatif au sein d'une équipe, contribuant ainsi à son potentiel créatif à long terme.

D'autre part, les incidents critiques, tels que les contraintes inattendues ou les perturbations de la dynamique d'équipe, sont des événements inattendus qui ont des effets immédiats et à court terme sur la créativité de l'équipe. Ces incidents surviennent souvent de manière inattendue au cours du processus créatif, ce qui conduit à une résolution innovante des problèmes lorsque les équipes s'adaptent à des limites imprévues. Il est essentiel de reconnaître que l'influence des incidents critiques sur la créativité de l'équipe dépend du contexte, de la situation spécifique et de la manière

dont ces incidents sont gérés. Cette distinction souligne l'interaction complexe entre les facteurs qui peuvent être influencés intentionnellement et les incidents imprévus, brouillant la frontière entre les contributeurs planifiés et imprévus au processus créatif.

Dans l'ensemble, les managers peuvent tirer parti de ces résultats pour améliorer les performances des équipes et cultiver un environnement propice à la créativité en donnant la priorité aux facteurs les plus importants. Le modèle Team Creativity IMOT (TCIM) offre une structure précieuse pour les projets de recherche à venir qui visent à explorer la créativité des équipes. Les études futures pourront se pencher sur les relations complexes entre les différents facteurs et sur la manière dont ils influencent collectivement la créativité d'une équipe. En outre, l'analyse des contextes des incidents critiques peut permettre de mieux comprendre une situation particulière survenue au cours du processus créatif de l'équipe. D'autres recherches pourraient se concentrer sur l'élaboration de lignes directrices complètes permettant aux équipes de combiner efficacement divers facteurs et de maximiser leur potentiel créatif.

Ce faisant, les organisations comprendront mieux les facteurs clés et les contextes spécifiques qui stimulent la créativité des équipes, ce qui leur permettra d'exploiter pleinement les capacités créatives de leurs équipes et de favoriser leur réussite globale.

**Mots-clés : Créativité d'équipe, incidents critiques, créativité, Taxonomie, IMOT, Facteurs, Thaïlande, Industries Créatives**



## SUMMARY OF DISSERTATION

Team creativity has become a critical aspect of business success in recent years. The ability of a team to work together creatively, generate novel ideas, and solve complex problems is crucial in today's fast-paced and competitive business environment. Researchers and experts in the field have suggested some of the key factors that are most important for team creativity. Although many researchers have worked to describe the concept of team creativity, we recognize that it is a complex concept composed of many dimensions.

Thus, we developed two research questions:

**RQ1: What factors influence team creativity in Theory and in Practice?**

RQ1.1: What factors influence team creativity in Theory?

RQ1.2: What factors influence team creativity in Practice?

**RQ2: How is team creativity process affected by Critical incidents?**

**Regarding RQ1.1,** What factors influence team creativity in Theory? We first explored and summarized the main dimensions and factors of team creativity. Following the PRISMA process, a Systematic Literature Review was conducted, which identified 193 relevant key references on the topic. 274 team creativity factors were collected from these references and were classified using the Input-Mediator-Output (IMO) team effectiveness framework (Mathieu et al., 2008). A taxonomy “Team Creativity IMOT model (TCIM)” (Input-Mediator-Output-Time) helps to better understand the current known criteria contributing to team creativity. This phase provides a clearer picture of what leads to team creativity and its underlying dimensions.

**Regarding RQ1.2, What factors influence team creativity in Practice?**

Transitioning from theory to practice, our research engages with 33 team leaders representing diverse fields. These experienced practitioners become a critical source of real-world insights into the dynamics of team creativity. In addition, this phase lies in in-depth qualitative interviews with these 33 team leaders. Through these interviews, we delve deep into their experiences, perspectives, and challenges regarding team creativity. Through rigorous analysis of the interviews, two themes emerged. First, there are the factors that enhance team creativity. These are the catalysts, strategies, and conditions that facilitate the team creativity. Second, there are the factors that hinder team creativity. These represent the obstacles, constraints, and challenges that act as barriers to team creativity. This phase bridges the gap between theoretical constructs and real-world applications. These team leaders, with their wealth of experience, provide invaluable insights into how the theoretical factors identified in the TCIM model manifest in actual team dynamics. The qualitative nature of the interviews allows for a clear understanding of team creativity.

The top-listed factors highlighted by our valued team leaders were precisely organized within the Input-Mediator-Output-Time (IMOT) framework, providing a structured representation of the factors that drive team creativity within the TCIM model. In order to ensure the consistency of these qualitative findings, we employed a quantitative approach, inviting team leaders to rate eight dimensions related to team creativity. This dual approach reinforced the credibility and robustness of our research findings.

**Regarding RQ2,** How is team creativity process affected by Critical incidents?

Our application of Critical incident technique (CIT) led us to a significant finding - team creativity is highly influenced by the context in which it occurs. Our study revealed that exploring the contextual distinctions of team creativity is crucial. Therefore, we adapted CIT to better understand these complexities. We conducted in-depth interviews using the Critical Incidents Technique to gather information on team leaders' experiences in successful and unsuccessful creative projects. The purpose was to identify critical events during the team creativity process. The CIT interview method was rarely employed in team creativity research.

However, for this research, the CIT approach was chosen to examine the team creativity process, which varies based on the specific context and situation. Team leaders were asked to share details or stories of significant incidents, which were analyzed to identify common themes and patterns. During our exploration of critical incidents, we discovered a complex set of 17 specific events that significantly impact team creativity. We found that leaders in the creative industry reported a higher frequency of these critical incidents, highlighting the unique challenges and opportunities they face. It is worth noting that some critical incidents had both positive and negative consequences, revealing the dual nature of these critical moments. Additionally, we noticed that creative leaders reported sequences of critical incidents, emphasizing the importance of understanding the dynamic flow of team creativity. Overall, our findings show the complex and dynamic nature of team creativity and the significance of critical incidents in shaping it.

In our research, we have distinguished between Team Creativity IMOT factors and Critical Incidents. The factors, such as team composition, team leadership, and

team culture, are elements that can be purposefully planned, designed, and managed to shape team creativity over the long term. These deliberate factors are instrumental in fostering a creative environment within a team.

On the other hand, Critical Incidents, such as "Unexpected constraints leading to positive or negative consequences" or "One person disrupting team dynamics," are specific, unplanned events that have short-term impacts on team creativity. These incidents often emerge unexpectedly during the team's creative processes. For instance, the sudden appearance of unexpected constraints can stimulate creative problem-solving as teams are compelled to find innovative solutions within limitations. Similarly, collaboration with external teams or partners, when occurring as a critical incident, can positively impact team creativity by infusing fresh perspectives, ideas, and expertise. It is important to note that the short-term effects of critical incidents on team creativity are frequently context-dependent, influenced by the specific situation at hand and how they are managed.

This distinction highlights the dynamic interplay between factors that can be intentionally shaped and unplanned incidents within the realm of team creativity. Depending on their context and management, certain critical incidents can also be seen as factors influencing team creativity, blurring the lines between planned and unforeseen contributions to the creative process.

This research has provided a multi-dimensional understanding of team creativity. From the extensive literature review to the development of the TCIM model, from practitioner insights to the introduction of CIT, and from the findings of critical incidents to the disclosure of contextual dependencies, this research emphasizes the complexity and contextuality of team creativity.

**For theoretical contributions**, the development of the Team Creativity IMOT Model (TCIM) is a substantial theoretical contribution, offering a comprehensive framework summarizing 274 factors impacting team creativity. This model provides a clear perspective and advances our understanding by considering both established and previously overlooked factors. Qualitative insights from 33 team leader interviews deepen our understanding of team creativity dynamics, with two key themes identified - factors that enhance and hinder team creativity. The IMOT framework adds structure to the TCIM model, aligning it with existing team dynamics theories.

A fundamental theoretical contribution lies in recognizing context's influential role in team creativity. Emphasizing context-specific studies using the Critical Incident Technique (CIT) challenges the one-size-fits-all approach. The identification and exploration of 17 critical incidents in team creativity offer insights into the dynamic and context-dependent nature of team creativity.

Moreover, this research provides distinguishing between Team Creativity IMOT factors and Critical Incidents. It highlights the complex interplay between planned and designed factors and unanticipated events, offering a more nuanced understanding of how team creativity is influenced. This contributes to the broader field of creativity and innovation research by emphasizing the importance of considering both planned and unforeseen factors.

These contributions expand our understanding of team creativity by offering a comprehensive framework, enriching our insights into real-world dynamics, and highlighting the context's crucial influence. They lay a solid foundation for future research in the field.

**For practical contributions,** this research enhances our understanding of team creativity, offering practical applications for practitioners. The Team Creativity IMOT Model (TCIM) serves as a practical framework, aiding organizations in identifying and addressing creativity-influencing factors. Team leaders, provided with insights on both positive and negative influences, can make informed decisions to optimize team performance, leveraging TCIM for proactive interventions.

Additionally, from our first intention, we wanted to develop an assessment tool for team creativity. This research can be the first step that providing the elements of the TCIM model, along with the IMOT framework, in the future offer a structured approach for assessing team creativity. So, the organizations can diagnose areas needing improvement and design targeted interventions. The research highlights the importance of context in team creativity, encouraging tailored strategies aligned with specific contexts and industries.

The analysis of critical incidents in team creativity offers practical lessons for real-world challenges and opportunities. Team leaders can learn from these incidents, while organizations in creative industries can anticipate and manage unique context-related challenges. The TCIM model and insights also form a basis for training programs aimed at enhancing team creativity and fostering a culture of continuous improvement.

This research gives practical tools and context-aware insights to enhance team creativity across organizational settings, equipping practitioners to foster innovation and creative problem-solving within their teams.

In conclusion, this dissertation is structured into eight chapters. Chapter 1 is an introduction to this research, which demonstrates the rationale and research problem statement, followed by the scope of the research study, introducing research questions, research purposes, and theoretical and practical contributions. Chapter 2 describes a Literature Review of what is known about team creativity, the gaps in research, and related work in this field and justifies the research questions. Chapter 3 outlines the research design and methodology, including data collection and analysis, that will be used to answer the research questions. Chapter 4, a Systematic Literature Review approach, and results in order to answer RQ1.1 on what factors influence team creativity in theory. In addition, Chapter 5 presents the results that answer RQ1.2 on what factors influence team creativity in practice. Then Chapter 6 presents the findings that answer RQ2 using the critical incidents approach. Chapter 7 is dedicated to the interpretations and discussion of the findings. Finally, In Chapter 8 provides conclusions and recommendations based on the research findings.

## RÉSUMÉ DE LA THÈSE

Ces dernières années, la créativité des équipes est devenue un aspect essentiel de la réussite des entreprises. La capacité d'une équipe à travailler ensemble de manière créative, à générer des idées nouvelles et à résoudre des problèmes complexes est cruciale dans l'environnement commercial rapide et compétitif d'aujourd'hui. Les chercheurs et les experts dans ce domaine ont suggéré certains des facteurs clés les plus importants pour la créativité d'une équipe. Bien que de nombreux chercheurs se soient efforcés de décrire le concept de créativité en équipe, nous reconnaissons qu'il s'agit d'un concept complexe composé de plusieurs dimensions.

Nous avons donc élaboré deux questions de recherche :

**RQ1 : Quels sont les facteurs qui influencent la créativité des équipes en théorie et en pratique ?**

RQ1.1 : Quels sont les facteurs qui influencent la créativité de l'équipe dans la théorie ?

RQ1.2 : Quels sont les facteurs qui influencent la créativité de l'équipe dans la pratique ?

**RQ2 : Comment le processus de créativité de l'équipe est-il affecté par les incidents critiques ?**

**En ce qui concerne la question 1.1**, quels sont les facteurs qui influencent la créativité de l'équipe dans la théorie ? Nous avons d'abord exploré et résumé les principales dimensions et les principaux facteurs de la créativité en équipe. En suivant le processus PRISMA, nous avons procédé à une analyse systématique de la littérature,



qui a permis d'identifier 193 références clés sur le sujet. 274 facteurs de créativité d'équipe ont été collectés à partir de ces références et ont été classés en utilisant le cadre d'efficacité d'équipe Input-Mediator-Output (IMO) (Mathieu et al., 2008). Une taxonomie "Team Creativity IMOT model (TCIM)" (Input-Mediator-Output-Time) permet de mieux comprendre les critères actuellement connus qui contribuent à la créativité de l'équipe. Cette phase fournit une image plus claire de ce qui conduit à la créativité d'équipe et de ses dimensions sous-jacentes.

**En ce qui concerne la question 1.2**, quels sont les facteurs qui influencent la créativité d'une équipe dans la pratique ? En passant de la théorie à la pratique, notre recherche mobilise 33 chefs d'équipe représentant divers domaines. Ces praticiens expérimentés deviennent une source essentielle d'informations concrètes sur la dynamique de la créativité en équipe. En outre, cette phase consiste en des entretiens qualitatifs approfondis avec ces 33 chefs d'équipe. Ces entretiens nous permettent d'approfondir leurs expériences, leurs points de vue et les défis qu'ils doivent relever en matière de créativité d'équipe. L'analyse rigoureuse des entretiens a permis de dégager deux thèmes. Tout d'abord, il y a les facteurs qui renforcent la créativité de l'équipe. Il s'agit des catalyseurs, des stratégies et des conditions qui facilitent la créativité de l'équipe. Deuxièmement, il y a les facteurs qui entravent la créativité de l'équipe. Il s'agit des obstacles, des contraintes et des défis qui font obstacle à la créativité de l'équipe. Cette phase comble le fossé entre les constructions théoriques et les applications dans le monde réel. Ces chefs d'équipe, forts de leur expérience, fournissent des indications précieuses sur la manière dont les facteurs théoriques identifiés dans le modèle TCIM se manifestent dans la dynamique réelle de l'équipe.

La nature qualitative des entretiens permet une compréhension claire de la créativité de l'équipe.

Les facteurs les plus importants mis en évidence par nos précieux chefs d'équipe ont été organisés avec précision dans le cadre Input-Mediator-Output-Time (IMOT), fournissant une représentation structurée des facteurs qui stimulent la créativité de l'équipe dans le modèle TCIM. Afin de garantir la cohérence de ces résultats qualitatifs, nous avons utilisé une approche quantitative, en invitant les chefs d'équipe à évaluer huit dimensions liées à la créativité de l'équipe. Cette double approche a renforcé la crédibilité et la solidité de nos résultats de recherche.

**En ce qui concerne la question 2**, comment le processus de créativité de l'équipe est-il affecté par les incidents critiques ? Notre application de la technique de l'incident critique (CIT) nous a permis de faire une découverte importante : la créativité d'une équipe est fortement influencée par le contexte dans lequel elle se produit. Notre étude a révélé qu'il est crucial d'explorer les distinctions contextuelles de la créativité d'équipe. Nous avons donc adapté le CIT pour mieux comprendre ces complexités. Nous avons mené des entretiens approfondis en utilisant la technique des incidents critiques pour recueillir des informations sur les expériences des chefs d'équipe dans des projets créatifs réussis ou non. L'objectif était d'identifier les événements critiques au cours du processus de créativité de l'équipe. La méthode d'entretien CIT a rarement été utilisée dans la recherche sur la créativité en équipe.

Cependant, dans le cadre de cette recherche, l'approche CIT a été choisie pour examiner le processus de créativité de l'équipe, qui varie en fonction du contexte et de la situation spécifiques. Les chefs d'équipe ont été invités à partager des détails ou des

récits d'incidents significatifs, qui ont été analysés afin d'identifier des thèmes et des modèles communs. Au cours de notre exploration des incidents critiques, nous avons découvert un ensemble complexe de 17 événements spécifiques qui ont un impact significatif sur la créativité de l'équipe. Nous avons constaté que les leaders de l'industrie créative rapportaient une fréquence plus élevée de ces incidents critiques, ce qui met en évidence les défis et les opportunités uniques auxquels ils sont confrontés. Il est intéressant de noter que certains incidents critiques ont eu des conséquences à la fois positives et négatives, révélant ainsi la double nature de ces moments critiques. En outre, nous avons remarqué que les leaders créatifs ont rapporté des séquences d'incidents critiques, soulignant l'importance de comprendre le flux dynamique de la créativité de l'équipe. Dans l'ensemble, nos résultats montrent la nature complexe et dynamique de la créativité d'une équipe et l'importance des incidents critiques pour la façonner.

Dans notre recherche, nous avons établi une distinction entre les facteurs IMOT de créativité de l'équipe et les incidents critiques. Les facteurs, tels que la composition de l'équipe, la direction de l'équipe et la culture de l'équipe, sont des éléments qui peuvent être planifiés, conçus et gérés à dessein pour façonner la créativité de l'équipe à long terme. Ces facteurs délibérés contribuent à favoriser un environnement créatif au sein d'une équipe.

En revanche, les incidents critiques, tels que les "contraintes inattendues entraînant des conséquences positives ou négatives" ou "une personne perturbant la dynamique de l'équipe", sont des événements spécifiques et non planifiés qui ont un impact à court terme sur la créativité de l'équipe. Ces incidents surviennent souvent de manière inattendue au cours des processus créatifs de l'équipe. Par exemple, l'apparition

soudaine de contraintes inattendues peut stimuler la résolution créative de problèmes, car les équipes sont obligées de trouver des solutions innovantes dans les limites imposées. De même, la collaboration avec des équipes ou des partenaires externes, lorsqu'elle se produit en tant qu'incident critique, peut avoir un impact positif sur la créativité de l'équipe en apportant des perspectives, des idées et des compétences nouvelles. Il est important de noter que les effets à court terme des incidents critiques sur la créativité de l'équipe dépendent souvent du contexte, de la situation spécifique et de la manière dont ils sont gérés.

Cette distinction met en évidence l'interaction dynamique entre les facteurs qui peuvent être façonnés intentionnellement et les incidents non planifiés dans le domaine de la créativité de l'équipe. En fonction de leur contexte et de leur gestion, certains incidents critiques peuvent également être considérés comme des facteurs influençant la créativité de l'équipe, brouillant les frontières entre les contributions planifiées et imprévues au processus créatif.

Cette recherche a permis une compréhension multidimensionnelle de la créativité des équipes. De l'examen approfondi de la littérature à l'élaboration du modèle TCIM, des observations des praticiens à l'introduction du CIT, et de la découverte des incidents critiques à la divulgation des dépendances contextuelles, cette recherche met l'accent sur la complexité et le caractère contextuel de la créativité d'une équipe.

**En ce qui concerne les contributions théoriques**, le développement du modèle Team Creativity IMOT (TCIM) est une contribution théorique substantielle, offrant un

cadre complet résumant 274 facteurs ayant un impact sur la créativité de l'équipe. Ce modèle offre une perspective claire et fait progresser notre compréhension en prenant en compte à la fois des facteurs établis et des facteurs précédemment négligés. Les données qualitatives issues de 33 entretiens avec des chefs d'équipe nous permettent d'approfondir notre compréhension de la dynamique de la créativité en équipe, avec deux thèmes clés identifiés - les facteurs qui améliorent et entravent la créativité en équipe. Le cadre IMOT ajoute une structure au modèle TCIM, en l'alignant sur les théories existantes en matière de dynamique d'équipe.

Une contribution théorique fondamentale consiste à reconnaître le rôle influent du contexte dans la créativité de l'équipe. L'accent mis sur les études contextuelles utilisant la technique de l'incident critique (CIT) remet en question l'approche unique. L'identification et l'exploration de 17 incidents critiques dans la créativité d'équipe offrent un aperçu de la nature dynamique et dépendante du contexte de la créativité d'équipe.

En outre, cette recherche permet d'établir une distinction entre les facteurs IMOT liés à la créativité de l'équipe et les incidents critiques. Elle met en évidence l'interaction complexe entre les facteurs planifiés et conçus et les événements imprévus, offrant une compréhension plus nuancée de la manière dont la créativité de l'équipe est influencée. Elle contribue au domaine plus large de la recherche sur la créativité et l'innovation en soulignant l'importance de prendre en compte à la fois les facteurs planifiés et imprévus.

Ces contributions élargissent notre compréhension de la créativité en équipe en offrant un cadre complet, en enrichissant nos connaissances sur les dynamiques du

monde réel et en soulignant l'influence cruciale du contexte. Elles constituent des bases solides pour les recherches futures dans ce domaine.

**En ce qui concerne les contributions pratiques**, cette recherche améliore notre compréhension de la créativité d'équipe, offrant des applications pratiques pour les praticiens. Le modèle Team Creativity IMOT (TCIM) sert de cadre pratique, aidant les organisations à identifier et à traiter les facteurs influençant la créativité. Les chefs d'équipe, qui disposent d'informations sur les influences positives et négatives, peuvent prendre des décisions éclairées pour optimiser les performances de l'équipe, en s'appuyant sur le modèle TCIM pour des interventions proactives.

En outre, notre première intention était de développer un outil d'évaluation de la créativité en équipe. Cette recherche peut être la première étape qui, en fournissant les éléments du modèle TCIM, ainsi que le cadre IMOT, offrira à l'avenir une approche structurée pour évaluer la créativité de l'équipe. Ainsi, les organisations pourront diagnostiquer les domaines nécessitant une amélioration et concevoir des interventions ciblées. La recherche met en évidence l'importance du contexte dans la créativité des équipes, encourageant des stratégies sur mesure adaptées à des contextes et des secteurs spécifiques.

L'analyse des incidents critiques dans la créativité des équipes offre des leçons pratiques pour les défis et les opportunités du monde réel. Les chefs d'équipe peuvent tirer des enseignements de ces incidents, tandis que les organisations des industries créatives peuvent anticiper et gérer des défis uniques liés au contexte. Le modèle et les idées de la TCIM constituent également une base pour les programmes de formation

visant à améliorer la créativité des équipes et à favoriser une culture de l'amélioration continue.

Cette recherche fournit des outils pratiques et des informations contextuelles pour améliorer la créativité des équipes dans tous les contextes organisationnels, permettant ainsi aux praticiens d'encourager l'innovation et la résolution créative de problèmes au sein de leurs équipes.

En conclusion, cette thèse est structurée en huit chapitres. Le chapitre 1 est une introduction à cette recherche, qui présente la justification et l'énoncé du problème de recherche, suivi de la portée de l'étude de recherche, de l'introduction des questions de recherche, des objectifs de la recherche et des contributions théoriques et pratiques. Le chapitre 2 présente une analyse documentaire des connaissances sur la créativité en équipe, des lacunes de la recherche et des travaux connexes dans ce domaine, et justifie les questions de recherche. Le chapitre 3 décrit la conception et la méthodologie de la recherche, y compris la collecte et l'analyse des données, qui seront utilisées pour répondre aux questions de la recherche. Le chapitre 4 présente une approche d'analyse systématique de la littérature et les résultats obtenus afin de répondre à la question 1.1, à savoir quels sont les facteurs qui influencent la créativité des équipes en théorie. En outre, le chapitre 5 présente les résultats qui répondent à la question 1.2 sur les facteurs qui influencent la créativité de l'équipe dans la pratique. Le chapitre 6 présente ensuite les résultats qui répondent à la question 2 en utilisant l'approche des incidents critiques. Le chapitre 7 est consacré à l'interprétation et à la discussion des résultats. Enfin, le chapitre 8 présente les conclusions et les recommandations basées sur les résultats de la recherche.

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## **CHAPTER 1**

### **INTRODUCTION**

#### **1.1 Introduction**

Team creativity is not just the sum of individual contributions. Scholars have thoroughly researched the complexities of team creativity and found it challenging to manage due to its multifaceted dimensions. Several factors contribute to the success or failure of team creativity, making it a rich and suitable area of study. This chapter presents an overview of the research by first discussing the rationale and problem statement behind this chosen research area. The study's scope, research questions, purpose and significance, and dissertation structure are all clearly outlined. Finally, a review of relevant terms is provided.

#### **1.2 Rational and Problem Statement**

##### **1.2.1 Creativity**

The term "Creativity" comes from the Latin word "*creare*" which means "to create, make." The word "Create" also appears in English as early as the 14th century. People believed that "creation" was associated with God and nature (Gunn, 2004; Brosseau & Silberstein, 2014). By the 15th century, the verb of creation ("to create" or "creating") started to be used (Pope, 2005). Over hundreds of years, creativity was related to God as opposed to people's ability.

During the Renaissance, the modern concept of creativity started to develop. Creation was considered to have an origin from an individual's abilities and not from God (Walter, 1997). The rising of the "Great men" concept of genius creativity also started in this period (Carlyle, 1888, 2013). Leonardo Da Vinci was a well-known



example of a creative genius. After the Enlightenment, the modern meaning of creation as an act of human creation emerged. "Creativity" was first documented in 1875 in "Adolphus William Ward's History of Dramatic English Literature" in reference to Shakespeare's "poetic creativity" (Weiner, 2000, p.89). Since then, the understanding of creativity as creating something has radically evolved.

The Enlightenment period showed a belief in the power of individuals' reason and their capacity to change the world, as seen as the foundation of individual notions of creativity (Cohen, 1982). Creativity (notably in art theory) was linked with the concept of imagination (Tatarkiewicz, 1980). William Duff was a pioneer "to identify imagination as a quality of genius, typifying the separation being made between talent (productive, but breaking no new ground) and genius" (Dacey, 1999).

During the late 19<sup>th</sup> century, there was found a significantly increased interest in creativity, such as in individual differences. Creativity research rapidly expanded since the work of Guilford (1950). It was moved from the scholar's attention to creativity as a result of personal intelligence to a shift to personal traits and individual differences. Additionally, scholars also focused on scientific approaches to conceptualizing creativity (Sternberg & Lubart, 1999). Guilford, known as the father of modern creativity research, contributed the most impactful studies in the field of creativity and intelligence. In addition, Paul Torrance also studied the relationship between creativity and intelligence, he proposed "the threshold hypothesis," which shows that a high degree of intelligence appears to be a necessary but not sufficient condition for high creativity (Guilford, 1967). Guilford also proposed the concept of "divergent thinking" and differentiated between divergent and convergent thinking. Divergent thinking is a generation of various creative solutions to a set of problems,

whereas convergent thinking is a selection of a single solution to a problem (Guilford, 1967).

More recently, theories of creativity have focused on various aspects. Looking back from the 1950s to the end of the century, creativity has been defined as two key features: novelty (i.e., original, unexpected) and appropriateness (i.e., useful, adaptive concerning task constraints) (Lubart, 1994; Sternberg & Lubart, 1991, 1995, 1996). The link between creativity and society impacts the value of creative products and shifting views of society (Feldman, Csikszentmihalyi, & Gardner, 1994; Gardner, 1993; Runco & Dow, 1999; Sternberg & Lubart, 1999, Sternberg, Kaufman, & Pretz, 2002). Thus, the study of individual creativity, which is the characteristics of a person who generates novel ideas, has, up to now, been the main attention of many scholars. According to Csikszentmihalyi (1996), creativity refers to individuals who have been recognized by others for making important and innovative contributions, often in a specific domain. Later, Kaufman and Beghetto introduced the terms little-c and Big-C to the major theories of creativity (Kozbelt, Beghetto, and Runco, 2010). Simonton's work of creative genius (1994, 2004) stated Big-C creativity as it consists of eminent creative contributions. Typical of creative genius is Albert Einstein. This implies that Big-C creativity is associated with Genius creativity or what is also called the "Great men" theory.

Several creativity theories are grounded in little-c, which focuses on everyday activities (creativity). According to Amabile's (1996) componential theory of creativity, three components are necessary for creativity: domain-relevant skills, creativity-relevant skills, and task motivation. Skills that are specific to a particular field are known as domain-relevant skills, which include technical expertise and specialized

abilities. On the other hand, creativity-related skills are influenced by personal factors that contribute to being creative. For example, tolerance for ambiguity, self-discipline, and being willing to take risks. Passionate and motivated individuals tend to be more creative than others (Amabile, 1996). Kaufman and Beghetto (2009) introduced mini-c and Pro-C as part of a four-C model. Mini-c, which focuses on transformative learning, involves creating personal and meaningful interpretations of experiences, actions, and insights. People who exhibit professional creativity are those who are creatively engaged in their profession or vocation but are not recognized as eminent like Big-C. The objective of this model was to aid in the development of creativity theories and to offer a practical framework for analyzing individual creative processes (Kaufman and Beghetto, 2009).

As the Four C's emphasizes the individual, the work of Rhodes (1961) has introduced the Four P's theories that focus more on how creativity is operationalized. To explore the reasons why some individuals are more creative than others, researchers have identified four key factors known "as the Four Ps: Process, Product, Person, and Place" (Kozbelt, Beghetto, & Runco, 2010). The process explains the creative process, which is shown in the cognitive approach that describes the thought mechanism and creative thinking techniques. The theories such as Divergent thinking (e.g., Guilford, 1950) and the stages of the creative process (e.g., Wallas, 1926) are the foundation of the creative process. For the creative product, it usually appears in attempts to measure the creativity of individuals, such as psychometrics or assessment of creative ideas (Gabora, 1997). Generally, a creative individual possesses certain intellectual habits such as being open to new experiences, having a high level of ideation, autonomy,

expertise, and so on. A place is a situation where creativity flourishes, it includes the degrees of autonomy (freedom), access to resources, etc.

Most of time, creativity has been viewed as it comes from an individual. Thus, many personal assessments have been developed to measure the level of individual creativity. One famous assessment is the creativity quotient, which assesses the creativity of an individual (divergent thinking tests) developed similarly as to the intelligence quotient (IQ) (Torrance, 1974). Guilford's group developed another individual creativity assessment in 1967 (Guilford, 1967) as

- "Participants are provided with a story plot and tasked with generating unique titles for it.
- The Quick Responses test measures word association and assigns scores based on how uncommon the words are.
- Participants in Figure Concepts are presented with basic sketches of objects and people and are required to identify shared characteristics or traits between two or more sketches. These sketches are then assessed for their uniqueness.
- Unusual Uses involve finding unusual applications for common, everyday objects like bricks.
- Remote Associations require participants to find a word that connects two given words (e.g. Hand \_\_\_\_\_ Call).
- Remote Consequences involves generating a list of consequences for unexpected events (e.g. loss of gravity). "

Guilford's creativity research assumes that creativity is not a single concept, but rather a multi-dimensional one. He argued that creativity arises from various factors (Guilford, 1957):

1. "The ability to recognize the problems
2. Fluency, which includes
  - a. Ideational fluency refers to the capacity to quickly generate different ideas that meet specific criteria;
  - b. Associational fluency refers to the capacity to create a list of words that are all connected to a particular word;
  - c. Expressive fluency refers to one's ability to arrange words into larger components such as phrases, sentences, and paragraphs.
3. Flexibility which includes
  - a. Spontaneous flexibility refers to the capability of exhibiting adaptability in various situations.
  - b. Adaptive flexibility refers to the capacity to generate unique and high-quality responses." (Guilford, 1957).

Over the years, many researchers used Guilford's model to create their own creativity theories (Sternberg, Jarvin & Grigorenko, 2010). Another famous individual creativity assessment is the Torrance Tests of Creative Thinking in 1966 which was built on Guilford's model (Torrance, 1974; Kim, 2006). The tests involve simple tests of divergent thinking and problem-solving skills. These assessments were scored on:

- "Fluency: the total number of interpretable, meaningful, and relevant ideas generated in responses to the stimulus.
- Originality: the statistics rarity of responses among the test subjects.

- Elaboration: the amount of detail in the responses"

Other scholars have used a social-personality approach to measure individual creativity. Personal traits such as "independence of judgment, self-confidence, attraction to complexity, aesthetic orientation, and risk-taking" have gained more attention to be used to measure individuals' creativity (Sternberg & Lubart, 1999). In addition, the Big Five personality model has some traits, such as Openness to experience, which have been presented to be related to different assessments of creativity (Batey & Furnham, 2006; Batey, Furnham, & Safiullina, 2010).

For example, Lubart's (2013) Creative Profiler measures 10 important characteristics of creativity using persons and processes approaches, which include 5 cognitive abilities and 5 personality traits. The cognitive factors pertain to specific abilities or knowledge, while the conative affective factors pertain to specific personality traits, motivation, and emotion. In addition, the environment is also considered as a factor in Lubart's creative profiler. TIPS Profile was proposed by Reis (2016). This is a tool for assessing an individual's creativity based on their personality and cognitive styles. There are 11 innovator profiles in the TIPS model, which are categorized into 7 methodological features including TIPS Base Orientations, TIPS Styles, TIPS Innovation Profiling Map, TIPS Innovation Profiling Questionnaire, TIPS Innovator Profiles, TIPS Style to Innovate, and TIPS Profile Report. Moreover, the FourSight thinking profile is "an assessment tool to help individuals and teams how they approach solving problems through creative thinking" (Puccio, 2002). Similar to TIPS, FourSight is a tool that identifies four cognitive styles preferences, namely Clarifier, Ideator, Developer, and Implementer. According to Puccio (2002), people possess different preferences for different parts of the creative process because it is a

cognitive process that comes naturally to them. Thus, this assessment tool shows how individuals and teams interact with creative problem-solving.

As was just presented, there has been a shift of interest from genius creativity, where creativity comes from the great men (The He-paradigm) to the creative person stage, where any normal person can be creative (The I-paradigm) and now the “social” stage which is related to social and collaborative creativity (The We-paradigm) (Glăveanu, 2010). In 1996, Amabile conducted research programs to explore how social factors affect the creative process. At that time, the new term "social creativity" emerged.

According to Purser & Montuori (2000), social creativity comes from people working together and interacting with each other. Regarding this new term, there is growing attention on "Group Creativity" (e.g., Paulus & Nijstad, 2003). A group is a collection of people who work together towards a shared goal or activity (Paulus, Nakui, & Putman, 2005). Most of Paulus group research is about brainstorming and an idea generation on group creativity (e.g., Paulus & Dzindolet, 1993; Paulus, 2000; Paulus & Yang, 2000; Paulus & Brown, 2003). The work of Paulus group uses "laboratory settings and focuses on detailed analyses of social and cognitive processes in the short term" (Paulus & Nijstad, 2003, p. 5). His research became "in time quite easily identifiable and represented for decades the only way of scientifically studying group creativity" (Glăveanu, 2011, p.476). It stressed quantitative methodologies, and it used "experimental, random assignment, use of noninteractive control groups, short sessions, use of student participants, primarily a focus on ideation, assigned problems, broad domain problems, no self-selection, no facilitators, and objective outcomes (Paulus et al., 2006, p. 75)."

Creativity in organizations, to come up with novel and relevant solutions relies mainly on teams such as project-based organizations (Ilgen et al., 2005; Katzenbach & Smith, 2005; Mathieu et al., 2008). Thus, there is an increasing interest in team research in organizations such as for example, on team effectiveness (e.g., Kozlowski & Bell, 2003; Mathieu, Maynard, Rapp, and Gilson, 2008; Mathieu & Gilson, 2012), team dynamics or team development (e.g., Kozlowski et al., 1999; Tuckman & Jensen, 1977), team learning (e.g., Bell, Kozlowski & Blawath, 2012; Edmondson, Dillon & Roloff, 2007; Kozlowski & Bell, 2008) and other concepts related to teams. Different studies assessed how teams cooperate, such as team functioning and team dynamics.

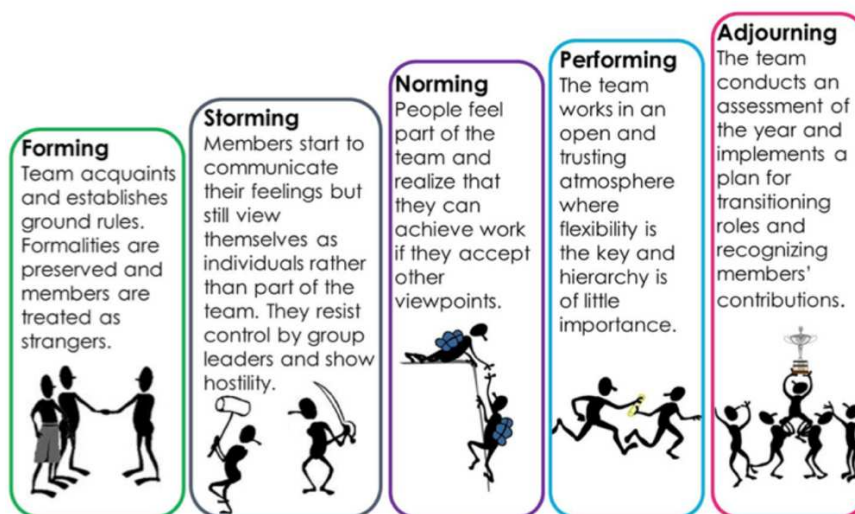
As part of these research interests, there is the concept of team creativity (e.g., Cirella et al., 2014; Gilson et al., 2015; Hoever et al., 2012; Joo et al., 2012; Reiter-Palmon et al., 2012; Shin & Zhou, 2007) that explains how teams share their knowledge (e.g., Santos, Uitdewilligen, & Passos, 2015), how teams solve challenges (e.g., Reiter-Palmon, de Vreede, & de Vreede, 2014; Reiter-Palmon & Leone, 2019). Additionally, an important factor of teams is their ability to come up with creative ideas/solutions (e.g., Reiter-Palmon, 2008, 2018). Kozlowski and Bell (2003) have defined a team as "Collectives who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity." (Kozlowski & Bell, 2003). Besides the definition of a team, there are development models of teams. For example, as a team progresses, it goes through different stages, starting with storming. This can be a challenging time for the team members as they discuss and sometimes conflict over what actions to take. Eventually, the team gains



loyalty and responsibility and begins to establish rules, roles, and status. In the norming stage, the team members develop a sense of unity and shared goals. In the performing stage, the team can work together smoothly and prevent problems. Tuckman (1965) presented a framework for team development.

**Figure 1.1**

*Tuckman Team Development Stages (Tuckman, 1965)*



We are currently in a knowledge economy where knowledge and ideas are the raw materials for innovation and competitiveness (Romer, 1990). Additionally, companies are now facing complex challenges that require creativity. The innovation effort and the adoption of new knowledge and ideas may increase competitiveness (Goel & Rich, 1997). For example, adopting new technologies for new products/services can help the organization benefit from competitors. Competitiveness and knowledge represent as “two key factors for enhancing long-term economic development, innovation, and sustainability” (Dima et al., 2018, p.3).

Creativity is the initial stage of innovation. Creativity is the process of developing novel and useful ideas. This involves divergent thinking, which is generating creative ideas by exploring many possible solutions (Runco, 2011). Innovation occurs through cycles of divergent creative thinking, followed by convergence to a selected solution. Hence, creativity is seen as the early stage of innovation, while the execution of that idea is referred to as a later stage of innovation.

Nowadays, almost every organization is considering creativity and saying they need to become more creative. They believe creativity will boost productivity, improve their value proposition, and help their organization win over their competitors; therefore, creativity may now be essential for both teams and organizations to survive (Gilson & Shalley, 2004; Shalley, Zhou, & Oldham, 2004).

The rapid change in technology is affecting organizational environments, and the amount of market competition and globalization is increasing. Thus, there is a need for more diversity and higher quality in the organization's products and services (Golson, 1977). In addition, more diverse and high-quality products can be called creative products, which are developed through the collaboration of teams. For instance, the diversity of individuals in a team is beneficial because they use their knowledge for problem-solving (e.g., the development of creative products) in addition to a variety of ideas and perspectives (Hoffman & Maier, 1961; Nemeth, 1986; Jackson, May, & Whitney, 1995; West & Anderson, 1996).

The growing focus on creativity is driven by the approaching automation of many routine jobs by artificial intelligence (AI) systems, as highlighted by the World Economic Forum in 2020. Although AI can handle many tasks effectively, those that require creativity pose a significant challenge for automation. This is where the concept

of human-AI co-creativity comes into play, highlighting how humans can add unique value compared to computers (Mueller, 2019; Peeters, 2021). In a world marked by rapid technological shifts, individuals must continuously adapt and be prepared to reinvent themselves. This adaptation involves not only keeping up with evolving trends but also harnessing the power of human-AI co-creativity to bring fresh and valuable ideas to the table and turn them into innovative solutions. It is proof of the evolving relationship between humans and AI, where collaboration fuels ingenuity and ensures a future where our creative potential knows no bounds.

### **1.2.2 Team Creativity**

According to Gilson and Shalley (2004), team creativity refers to the collective behavior, cognitive efforts, and emotional state of individuals who explore new ideas, adopt innovative approaches to their work, and produce novel and practical outcomes.

Previous studies on team creativity have drawn attention to combining individual creative abilities and assuming that team creativity is the sum of this combination (individual creativity). They focus on the aggregation of individual creativity, such as team members' individual characteristics, team composition, and team diversity (e.g., Shin & Zhou, 2007; Zhou & Hoever, 2014). Recent research has challenged the assumption that individual attributes are directly linked to team creativity. It has been found that high levels of individual creativity among team members do not necessarily result in high levels of team creativity. Thus, some scholars focus on the impact of team processes such as motivation and interpersonal interaction (e.g., Harvey, 2014; Paulus, 2000). For example, a psychological safety environment helps team members express and share their ideas which increases team creativity

(Edmondson, 1999). Furthermore, team creativity is observed from a social networking perspective, such as informal network relationships outside the team (Perrysmith & Shalley, 2003; Perrysmith & Mannucci, 2017).

According to numerous scholars, team creativity is often identified as a result and measured as the outcome of performance or creative products. However, the team creativity process has received more attention in recent years. Since team creativity as a process is a collaborative effort where ideas are shared and refined to come up with novel and innovative solutions. The process includes brainstorming, idea generation, idea selection and evaluation, and implementation. By involving the team in the creative process, it increases a sense of ownership, motivation, and commitment to the project. The team creativity process encourages open communication and collaboration. Team creativity as a process enables organizations to solve complex problems, improve products and services, and drive innovation.

Although much research has tried to define team creativity (as a result or as a process), there is still no consensus on the term "Team Creativity" which remains ambiguous. Moreover, the scholars interchangeably use the term team creativity and group creativity (Paulus, Nakui & Putnam, 2005). Thus, this research emphasizes the distinction between the group and team creativity. This research explores the different aspects of team creativity, including its processes.

In conclusion, these research statements lead us to study team creativity now, and it can be summarized in the following ways: Firstly, much of early literature on creativity has focused on individual creativity as seen in the great men stage (The He-paradigm) and the creative person stage (The I-paradigm) in the history of creativity.

Many scholars have also focused on creative genius, assuming that great new ideas and innovation come from individual genius rather than collaboration (Simonton, 1999).

Previous studies have mainly paid attention to the creativity of an individual (Reiter-Palmon, Wigert & de Vreede, 2012), they mainly considered "Team Creativity" was primarily based on the sum of individual creativity of each team member, rather than evaluating the team's creativity as a whole. Accordingly, they developed a creativity assessment for an individual (Mavri, Ioannou, & Loizides, 2020). A sum of individual creativity does not necessarily result in higher team creativity. Moreover, as mentioned in many studies, they are growing interested in collective creativity (Farh, Lee, & Farh, 2010; Harvey, 2014; Kanlı, 2020; Kurtzberg & Amabile, 2001; Paulus & Baruah, 2018; Yuan & Zhou, 2015). Moreover, 89% of survey respondents from the In-House Creative Management report (2020) say that "creative work is important to meet business objectives, and 55% of creative teams rarely or never get quantitative feedback on the performance of their work." Many business professionals still view team creativity as a measure of results or performance (Hauser, 2020). Consequently, it would be valuable to identify all the factors that influence team creativity, both in literature and in practice.

Secondly, much research has tried to define what is team creativity. There is no consensus on the definition of team creativity. Thus, the term "Team Creativity" remains ambiguous. Most scholars use the terms "team creativity and group creativity" interchangeably (Paulus, Nakui & Putnam, 2005). Before delving into the concept of team creativity, it is important to establish a clear definition of it and distinguish it from group creativity.

Thirdly, the reasons for the emergence of interest in team creativity are linked to the fierce current competition in the marketplace due to rapid changes in technology and globalization and knowledge-based economy. Team creativity is viewed as one of the solutions to solve this kind of problem because the diverse knowledge of team members can offer more alternative solutions (wider and deeper) to the problems (Hoffman & Maier, 1961; Nemeth, 1986; Jackson, May, & Whitney, 1995; West & Anderson, 1996) as well as helping reducing uncertainty (Cox, Lobel, & McLeod, 1991). By understanding the factors that influence team creativity, organizations can foster a culture of creativity and innovation and develop products and services that are better than competitors. Furthermore, examining team creativity can offer valuable knowledge for managers or team leaders on how to manage and guide teams effectively, which is essential for successful organizations.

Finally, focusing on the critical incident technique (CIT) in this research helps academics and practitioners better understand the roles and value of the team creativity process through specific contexts and situations in various industries. In this research, the CIT method was used as a data collection process. This was necessary to gain a detailed understanding of the team creative process within its specific context. Additionally, some factors can positively and negatively affect team creativity, such as team conflict, unexpected constraints, trust, etc. Also, the context in which the teams operate affects the influence of different factors on their creativity, such as Thai culture and Team context. Thus, for this research, the CIT approach was chosen to examine the team creativity process, which varies based on the specific context and situation.

### **1.3 Scope of the Study**

There is an emergence of creative needs of the team. As the creative industry is a source of creative products/ideas/solutions, working individually is not always the best answer. Two perspectives of team creativity are presented in this research, including the aggregation perspective (e.g., Shin & Zhou, 2007; Zhou & Hoever, 2014) and the process perspective (e.g., Harvey, 2014; Paulus, 2000). The aggregation view studies the combination of individual attributes which contribute to team creativity, such as individual creativity, heterogeneity of team members, team composition, etc. Moreover, this research added the concepts of the initial view (aggregation) by considering the importance of a team process and team environment, team emergent states in influencing team creativity (Mark, 2001; Mathieu, 2008). Thus, these factors could potentially have a significant influence on team creativity.

While scholars have identified numerous factors that influence team creativity, managers still need to determine how to effectively manage these factors. This research needs to go further into a systematic literature review to identify and organize the factors that influence team creativity and analyze the critical incidents of the team creativity process from the perspectives of managers or team leaders from various industries in Thailand.

### **1.4 Research Questions**

Based on previous studies of team creativity, there are several factors that are difficult to manage. Therefore, further research beyond a literature review is necessary. In order to understand all the factors that influence team creativity, a Systematic Literature Review will be conducted. This will involve researching and categorizing all

the relevant factors mentioned in previous studies (developing the research question on what factors influence team creativity **in theory**). We will then test these factors with team leaders in the field to see how they play out in practice (developing the research question on what factors influence team creativity **in practice**). We will study the team creativity processes using the Critical Incident Technique (CIT) to determine if there were any incidents that were not influenced by the team's characteristics. This is because team creativity is situation-dependent and context-specific. Studying team creativity in a practical setting can bring new knowledge to the literature and offer valuable advantages to the field. Thus, we developed two research questions for this research:

**RQ1 What factors influence team creativity in theory and in practice?**

RQ1.1 What factors influence team creativity **in theory**?

RQ1.2 What factors influence team creativity **in practice**?

**RQ2. How is the team creativity process affected by critical incidents?**

**1.5 Purpose and Significance of the Study**

The purpose of this research is to:

- (1) Further explore the concept of "Team Creativity"
- (2) Propose a comprehensive model of team creativity dimensions and its applicability in practice.
- (3) Evaluate the potential of the critical incident method to highlight contextual factors and events that may positively or negatively impact team creativity.



The study of team creativity in real work settings will benefit both academic and practical contributions.

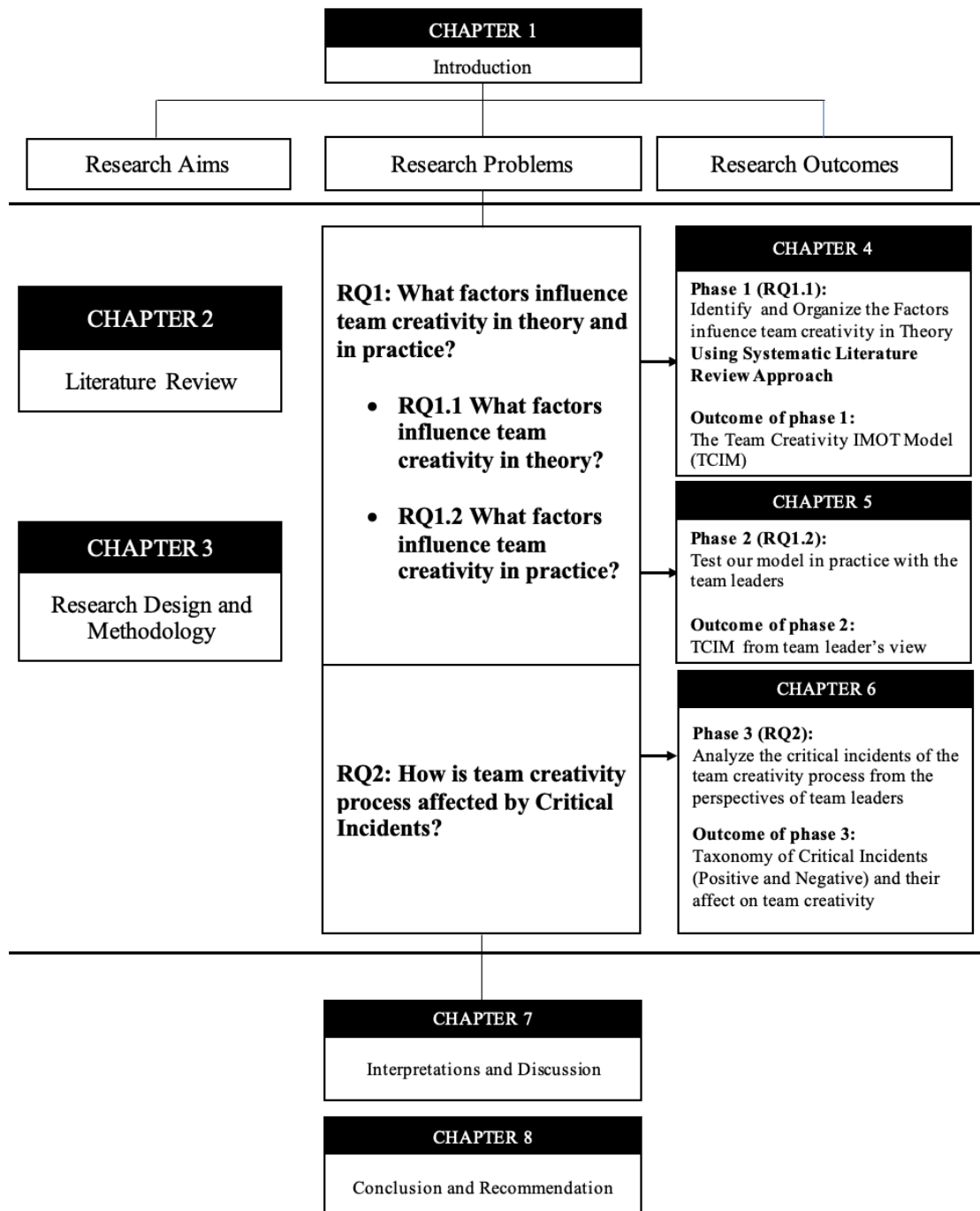
For theoretical contributions, this research will:

- (1) Develop a comprehensive model of team creativity.
- (2) Generate hypotheses about critical incidents that may have a positive or negative impact on team creativity to provide a better understanding of team creativity in practice.

For managerial contributions, this research will:

- (1) Develop a better understanding of the dimensions of team creativity that have to be taken into account to improve team performance.
- (2) Be aware of critical incidents that may have an impact on the course of team creative work in order to better anticipate them.

## 1.6 Structure of the dissertation



The structure of this dissertation starts with Chapter 1, the introduction section, which demonstrates the rationale and research problem statement, followed by the scope of the research study, introducing research questions, research purposes, and

theoretical and practical contributions. Chapter 2 describes a Literature Review of what is known about team creativity, the gaps in research, and related work in this field and justifies the research questions. Chapter 3 is the research design and methodology, including data collection and analysis, which will be used to answer the research questions. In Chapter 4, a Systematic Literature Review approach is developed, and results in order to answer RQ1.1 on what factors influence team creativity in theory are presented. In addition, Chapter 5 answered RQ1.2 on what factors influence team creativity in practice. Then Chapter 6 represents the findings that answer RQ2 using the critical incidents approach. Next, Chapter 7 is the interpretations and discussion of the findings. Finally, In Chapter 8, conclusions and recommendations are provided.

### **1.7 Review of Relevant Terms**

The following key terms are used in this research:

**Creativity:** "Creativity is the ability to produce work that is both novel (i.e., original, unexpected) and appropriate (i.e., useful, adaptive concerning task constraints)" (Lubart, 1994).

**Critical incidents:** "A critical incident can be described as one that makes a contribution—either positively or negatively—to an activity or phenomenon. Critical incidents can be gathered in various ways, but typically respondents are asked to tell a story about an experience they have had" (Flanagan, 1954).

**Teams:** "Collectives who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets

boundaries, constrains the team, and influences exchanges with other units in the broader entity" (Kozlowski & Bell, 2003).

**Team Creativity:** "a collective phenomenon where members behaviorally, cognitively, and emotionally attempt new things, take novel approaches to their work, or generate products, processes, or procedures that are both novel and useful" (Gilson & Shalley, 2004).

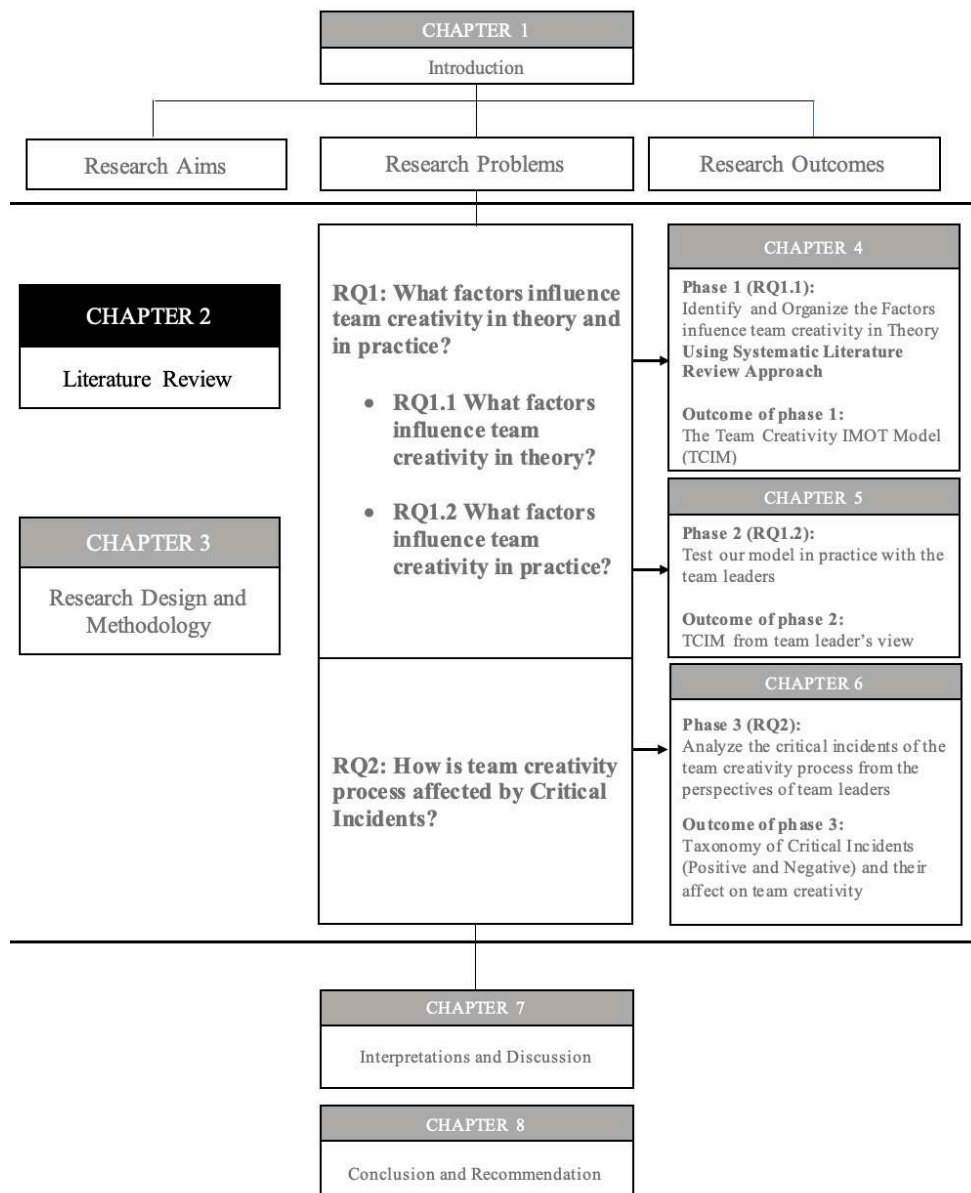
**Team Creative Process:** "is concerned with team members behaviorally, cognitively and emotionally attempting new things or ways of going about their work" (Kahn, 1990).

## CHAPTER 2

### LITERATURE REVIEW OF TEAM CREATIVITY

#### 2.1 Introduction

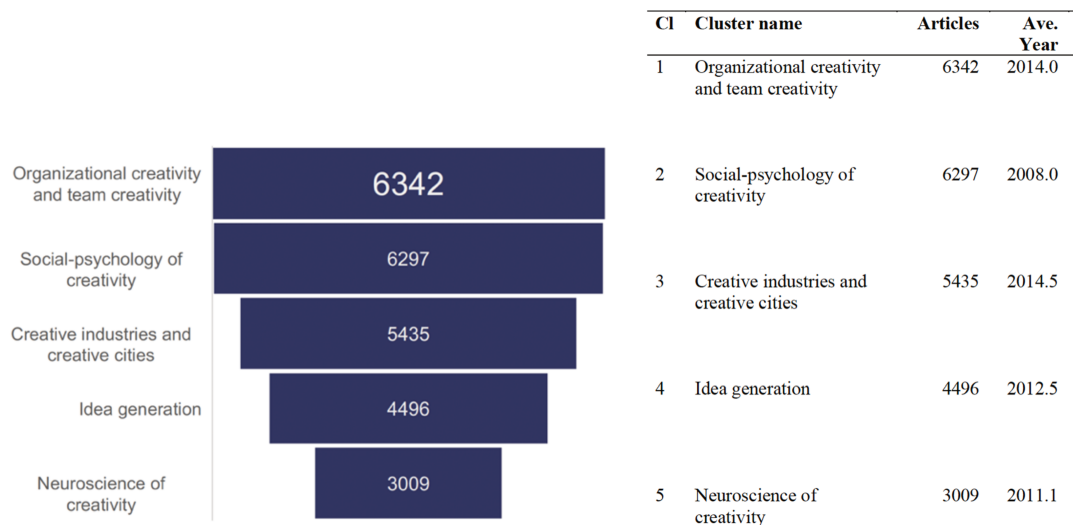
This chapter presents the literature review of the team creativity research field. State of the art is presented, including the current trends of team creativity, definitions, measurements, and what are the factors that influence team creativity. Furthermore, the selected references are reviewed and analyzed in this chapter.



Current trends (1922-2020) in creativity research have mostly focused on organizational creativity and team creativity (6342 articles) and social psychology of creativity (6297 articles) (See Mejia & Kajikawa, 2021).

**Figure 2.1**

*Main trends in creativity research (Mejia & Kajikawa, 2021)*



Additionally, the main research on team creativity has focused on various trends and approaches. One trend is the exploration of the factors that influence team creativity. Previous studies have considered team creativity as the sum of individual creativity. Thus, the aggregation of team creativity includes team members' individual characteristics, team composition, and team diversity (e.g., Shin & Zhou, 2007; Zhou & Hoever, 2014). Also, team creativity has been studied as a process. The process of team creativity consists of motivation and interpersonal interaction (e.g., Harvey, 2014; Paulus, 2000) and team emergent states influencing team creativity (Mark, 2001; Mathieu, 2008). Moreover, some studies have examined the network of team creativity from a social networking perspective, including informal relationships outside of the team (Perry-smith & Shalley, 2003; Perry-smith & Mannucci, 2017). Another trend is

the exploration of different models of team creativity, such as the dynamic componential model of creativity (Amabile and Pratt, 2016), the interactionist model (Woodman, Sawyer, & Griffin, 1993), additive and disjunctive models (Steiner, 1972; Yuan & van Knippenberg, 2020), which propose different ways of conceptualizing the relationship between individual and team creativity (Yuan & van Knippenberg, 2020; Yuan, Humphrey, and van Knippenberg, 2022). Moreover, the existing studies apply an Input-Process-Output (IPO) model to explore team creativity input and process variables (McGrath, 1964). In order to measure team creativity, scholars have adopted various approaches, such as supervisors or leaders assessing their teams' creativity (e.g., Oldham & Cummings, 1996; Shin & Zhou, 2007; Zhou & George, 2001), looking at the idea generation of the overall team (e.g., De Dreu et al., 2008; Diedrich, Benedek, Jauk, & Neubauer, 2015; Janssen, 2000), and consensual assessment to measure product creativity (e.g., Amabile, 1983; Besemer and Treffinger, 1981). Therefore, these research trends and approaches provide valuable insights into the complex nature of team creativity and offer practical implications for enhancing team creativity in organizational settings.

Besides these research trends, the team creativity approach is centered around the idea that working together can lead to better outcomes than working alone, and it is often used in fields such as business, engineering, and design. Effective team creativity relies on a supportive environment that encourages open communication, constructive feedback, and a willingness to take risks (West, 1990). Studying team creativity in organizations is a crucial aspect of understanding how teams can work together to generate novel and useful ideas. One of the main benefits of examining team creativity is that it can lead to innovations that can improve the overall performance of the

organization (Shin et al., 2012). When teams are able to come up with creative ideas, it can lead to the development of new products or services that can help the organization stand out in a competitive market. Another important reason for studying team creativity is the ability to leverage the diverse perspectives and skills of team members. By working together, team members with different backgrounds, experiences, and knowledge can bring unique ideas to the table. This can result in more creative solutions that might not have been possible through individuals working alone. Additionally, team creativity can lead to increased motivation and job satisfaction among team members, as they feel more engaged and invested in the work they are doing (project ownership). Furthermore, the team creativity approach can help organizations foster climate of innovation (West & Anderson, 1996). When top management prioritizes creativity and encourages their employees to think outside the box, it can lead to more engaged and motivated team members. By promoting creative thinking, organizations can also attract and retain top talented people who are drawn to companies that value creativity and innovation. Finally, studying team creativity can help organizations identify and address any barriers that may be hindering the team creative process (Amabile & Khaire, 2008). By identifying these obstacles, organizations can take steps to get rid of them and create an environment that fosters creativity. This can include providing training and resources to help teams develop their creative skills, as well as creating a supportive creative culture that encourages risk-taking and experimentation. By fostering a culture of collaboration and openness, teams can build psychological safety and trust, and mutual respect (Edmondson, 1999), which can lead to greater success and satisfaction in their work.



The purpose of this literature review on team creativity is to provide a comprehensive analysis of existing research studies, theories, and models related to the topic. This review will help to identify gaps in knowledge and highlight the most significant findings. Most importantly, this literature review will help to justify the research questions in this research.

## 2.2 Team Creativity Definitions

Through a literature review, the core and surrounding concepts of team creativity were identified. Specifically, 70 out of 193 papers provided a definition for team creativity.

**Table 2.1**

*Selected Team Creativity definitions from previous studies*

N	Definitions	References	# of citations (Google scholar)
1	Creativity at the team level "explicitly incorporates the interpersonal discussion among team members."	King and Anderson (1990, p. 82)	373
2	Team creativity is defined as the development of "valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system."	Woodman, Sawyer, & Griffin (1993, p.293)	7009
3	Team creative performance refers to "the extent to which a team generates novel and useful ideas on products, services, and procedures."	Amabile (1996)	1403
4	Team creativity is "the creation of valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system."	Amabile, Conti, Coon, Lazenby, & Herron (1996)	9926
5	Team creativity refers to "the development of novel ideas and solutions to maintain the team's competitive advantage."	Amabile (1998)	5160
6	Team creativity has been defined as "the degree to which a project team's processes are novel in the context of the project's objectives."	Drazin et al (1999)	1916
7	Team creativity is "an interactive function of aggregated individual creativity and the amount of team creativity-relevant processes"	Taggar (2002, p.325)	1321
8	Team creativity occurs "when team members work in integrated ways to capitalize on their diverse knowledge and skills to produce novel and useful ideas for innovation."	West (2002)	2382

9	Team creativity, defined as "the production of novel and useful ideas for processes and products."	Farmer, Tierney and Kung-Mcintyre (2003, p. 619)	1052
10	Team creativity is defined "as a collective phenomenon where members behaviorally, cognitively, and emotionally attempt new things, take novel approaches to their work, or generate products, processes, or procedures that are both novel and useful."	Gilson & Shalley (2004)	1042
11	Team creativity is defined as "an aggregate of creativity across individuals and time"	Pirola-Merlo & Mann (2004, p.238)	738
12	Team creativity is defined as "an aggregated concept of creativity, productivity, and innovativeness."	Chen (2006, p.106)	273
13	Team creativity is defined as "the production of novel and useful ideas concerning products, services, processes, and procedures by a team of employees working together."	George and Zhou (2007)	1062
14	Team creativity is "the production of novel and useful ideas concerning products, services, processes and procedures by a team of employees working together."	Shin & Zhou (2007, p.1710)	1011
15	Team creativity refers to "as the combination of newness and usefulness of ideas that are developed by the team. Team creativity is not simply the aggregation of ideas generated by individual members; rather, it involves team members collectively processing information, considering disparate views, and eventually producing creative outcomes."	Hülshager, Anderson, & Salgado (2009)	2027
16	Team creativity refers to "teams producing novel ideas and solutions to maintain the firm's competitive edge."	Barczak (2010, p.3)	667
17	Team creativity can be defined as "the joint novelty and usefulness of ideas regarding products, processes, and services."	Hoever (2012, p. 983)	772
18	Team creativity is "the members' view of the extent to which the team suggests new ideas or solutions to achieve goals, perform work tasks, improve performance and solve problems."	Joo (2012, p. 79)	137
19	Team creativity refers to "those team behaviors that produce both novel and useful solutions in a complex social context or work environment."	Montag (2012)	270
20	Team creativity is defined as "the generation of novel and appropriate ideas, solutions, or processes in the context of team task performance."	Sung & Choi (2012, p.4)	291
21	Team creativity comes from "the interaction among members to collectively integrate various perspectives to put forward new and valuable ideas for the team."	Harvey and Kou (2013)	283
22	Team creativity was examined as "team member perceptions of the creative processes in the team task."	Khedhaouria & Ribiere (2013, p.319)	22
23	Team creativity is defined as "the extent to which team members develop, suggest and promote new ideas to the team."	Tang (2014, p.2)	60
24	Team creativity is defined as "the generation of new ideas and valuable solutions that are based on collective efforts and a collaborative exchange of perspectives and information."	Carmeli & Paulus (2015)	116
25	Team creativity can be referred as "the generation of useful, new and unique ideas by the team, whereas the organizational innovation is the successful implementation of these creative ideas for the betterment of the organization."	Bilal (2018)	2

26	Team creativity is "the ability of individuals to potentially converge, especially with creativity, to interact with each member to come up with ideas for problem resolution and ultimately solve problems creatively."	Kim (2021) and Ministry of Education, Science and Technology. 2010	12
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Based on previous studies, we analyzed the definitions of team creativity and group creativity and identified the main attributes of each definition:

**Table 2.2**

*Definitions of team creativity and their main defining attributes*

Def.	Author/Date	Combined Individual Creativity	Group process/Creative process	Collaboration/Coordination/Interaction	Develop novel and useful ideas or product or performance (by group of people)
1.	King and Anderson (1990)			✓	
2.	Woodman, Sawyer, & Griffin (1993)			✓	✓
3.	Amabile (1996)	✓		✓	✓
4.	Amabile, Conti, Coon, Lazenby, & Herron (1996)	✓		✓	✓
5.	Amabile (1998)	✓		✓	✓
6.	Drazin et al (1999)		✓		✓
7.	Taggar (2002)	✓	✓		
8.	West (2002)	✓		✓	✓
9.	Farmer, Tierney and Kung-Mcintyre (2003)				✓
10.	Gilson & Shalley (2004)	✓	✓	✓	✓
11.	Pirola-Merlo & Mann (2004)	✓			
12.	Chen (2006)				✓
13.	George and Zhou (2007)			✓	✓
14.	Shin & Zhou (2007)			✓	✓
15.	Hülshager, Anderson, & Salgado (2009)	✓	✓	✓	✓
16.	Barczak (2010)	✓		✓	✓
17.	Hoever (2012)				✓

18.	Joo (2012)	✓			✓
19.	Montag (2012)	✓			✓
20.	Sung & Choi (2012)				✓
21.	Harvey and Kou (2013)	✓		✓	✓
22.	Khedhaouria & Ribiere (2013)	✓	✓		
23.	Tang (2014)	✓			✓
24.	Carmeli & Paulus (2015)			✓	✓
25.	Bilal (2018)	✓			✓
26.	Kim (2021) and Ministry of Education, Science and Technology. 2010	✓		✓	✓
	<b>Total</b>	<b>61.54% (16)</b>	<b>19.23% (5)</b>	<b>53.85% (14)</b>	<b>84.62% (22)</b>

Most of the definitions (84.62%) include as defining attributes “Develop novel and useful ideas or product or performance (by a group of people)” which emphasizes on the output of the team creative process, and only 19.23% define it as a process. 2<sup>nd</sup> most significant attribute is the combination of individual creativity (61.54%), which is only a part of what we believe team creativity is. We use this definition of team creativity in this research:

*"Team creativity is defined as a collective phenomenon where members behaviorally, cognitively, and emotionally attempt new things, take novel approaches to their work, or generate products, processes, or procedures that are both novel and useful (Gilson and Shalley, 2004)."*

This definition reflects all main defining attributes in Table 2. Therefore, this definition has covered all attributes of team/group creativity, and it will be used as a reference in this research.

### 2.2.1 Teams VS Groups

We adopt the “work teams” definition by Kozlowski and Bell (2003):

*"Collectives who exist to perform organizationally relevant tasks, share one or more common goals, interact socially, exhibit task interdependencies, maintain and manage boundaries, and are embedded in an organizational context that sets boundaries, constrains the team, and influences exchanges with other units in the broader entity." (Kozlowski and Bell, 2003)*

Additionally, Groups have been defined as:

*"Working groups are both prevalent and effective in large organizations where individual accountability is most important. The best working groups come together to share information, perspectives, and insights; to make decisions that help each person do his or her job better; and to reinforce individual performance standards. But the focus is always on individual goals and accountabilities. Working-group members don't take responsibility for results other than their own. Nor do they try to develop incremental performance contributions requiring the combined work of two or more members (Katzenbach & Smith, 1993)."*

Katzenbach and Smith (1993) outlined ten important distinctions between a team and a group, which are as follows:

**Table 2.3**

*Ten significant differences between the attributes of the Teams and Groups (Katzenbach and Smith, 1993)*

<b>Real Teams</b>	<b>Working Groups</b>
Shared leadership roles as they see fit	Have a strong and clearly focused leader
Take mutual, collective accountability	Take individual accountability
Create specific team objectives that they deliver themselves	Objectives imposed, mandated, granted and the same as the broader organizational mission
Deliver collective products/outcomes	Deliver individual products/outcomes
Encourage open-ended discussion and active problem-solving meetings	Run efficient meetings
Measure performance directly by assessing collective products/outcomes	Measure effectiveness indirectly by their influence on others
Discuss, decide and do real work	Discuss, decide and delegate
Have open and honest dialogue	Have polite discussions
Have fun working together and laugh a lot	Just work
Can't wait to be together	Meet because they have to

One individual can be a member of different groups. Groups will no longer be together when the task is finished, which is different from Teams.

Savelsbergh (2005) has proposed team typologies based on various classifications used in teamwork research across different disciplines. These typologies categorize teams into four categories based on their functional role or mission, structural features, maturity, and diversity of team members:

Table 2.4

## Team typologies based on Mission

Auteur	Labels	Variables	In- / De-ductive	Emp. validated
Antoni (2004)	teams which <i>are part of</i> the regular work organization; teams which <i>complement</i> the regular work organization	position within the organization, team task, duration of collaboration	deductive	no
Bell & Kozlowsky (2002)	virtual teams with complex tasks; virtual teams with simple tasks	a continuum differing in task complexity	deductive	no
Cannon-Bowers (1995)	context driven team competences; team contingent competences; task contingent competences; transportable competences	team competences	deductive	no
Devine (2002)	executive; command; negotiation; commission; design; advisory; service; production; performance; medical; response; military; transportation; sports	fundamental work cycle; physical abilities; temporal duration; task structure; active resistance; hardware dependence; health risk	inductive	yes
Dunphy & Bryant (1996)	teams with a focus on skilling; teams with a focus on operational responsibility previously performed by managers; teams with an emphasis on problem solving innovation and strategic decision making	team task differing in need for: 1. breath technical expertise 2. degree of self-management 3. degree of self leadership.	inductive	yes
Glassop (2002)	problem solving groups (quality circles); self-managing or natural work groups; cross-functional teams (committees, project teams)	team task; duration; hierarchical level of the team members;	deductive	yes
Hackman (1990)	top-management groups; taskforces; professional support groups; human service teams; customer service teams; production teams	team task	deductive	yes
Recardo et al (1997)	simple problem solving teams; taskforces; cross functional teams; self-directed teams	commitment to and importance of team goal	inductive	yes
Katzenbach & Smith (1993)	teams that recommend things; teams that make or do things; teams that run things	team task	inductive	yes
McGrath & O'Connor (1996)	taskforces; teams; crews	member / roles; technology; tasks / projects	deductive	no
Mohrman, Cohen & Mohrman (1995)	work teams; integrating teams (subtype: management teams); improvement teams	mission of the team	inductive	yes
Sundstrom et al. (1990)	advice & involvement teams; project & development teams; production & service teams; action & negotiation teams	degree of differentiation (i.e. specialization and autonomy), integration (i.e. degree of integration/interaction with the larger system outside the team) and work cycles (i.e. length and novelty)	deductive	no
Webber & Klimoski (2004)	crews; other teams	member / roles; technology; tasks / projects	deductive	yes
West (1996)	simple decision making workgroups; complex decision making workgroups	decision making complexity	inductive	yes
Devine et al (1999)	ad hoc project teams ; ongoing project teams ; ad hoc production teams ; ongoing production team	team task; composition and structure	inductive	yes

Table 2.5

*Team typologies based on Structural features*

Authors	Team types	Dimensions	In- / Deductive	Emp. validated
van Amelsvoort & Benders (1996)	Japanese, lean or just-in-time teams: the HAN; Swedisch, German, sociotechnical or selfdirected workteams	autonomy and the number of hierarchical levels.	deductive	yes
Bacon & Blyton (2000)	high road teamworking ; low road teamworking	degree of change (fundamental vs. less significant); systems of task allocation; job responsibilities	deductive	yes
Banker et al. (1996)	traditional work groups; quality circles; high performance work teams; semi-autonomous work groups; self-managing teams; self-designing teams	team autonomy	deductive	no
Benders et al. (1999)	weak group delegation; medium group delegation; team-based	coverage of group delegation (proportion of employees involved); intensity (number of decision rights)	deductive	yes
Berggren (1993)	Japanese; Swedish	production arrangement; dependencies between groups; supervision and control; work intensity; role of the unions	deductive	no
Delarue et al. (2004)	lean directed; lean self-directed; sociotechnical directed,; sociotechnical self-directed	division of labour within the organization; division of labour within the team; role of the teamleader	inductive	yes
Doorewaard et al. (2002)	hierarchical teams; shared responsibility teams	variety of the job regulation tasks; nature of the division of responsibilities	deductive	yes
Jürgens (1992)	German; Japanese	degree of time autonomy; hierarchical structure; degree of standardization; functional flexibility; training	deductive	yes
Kuipers (2005)	sociotechnical, Western, (mostly European) teams; Lean, Japanese, (partly American) teams	Task design, organization principle, organization structure, leadership, improvement focus, improvement philosophy, production set-up	deductive	no
Thompson (1967)	pooled/additive; sequential; reciprocal and intensive; interdependent work; arrangement teams.	interdependence in work arrangement	deductive	yes



**Table 2.6***Team typologies based on Maturity*

Auteur	Labels	Variables	Inductive Deductive	Empirically vallidated
Van Amelsvoort et al. (2003)	bunch of individuals; group; team; open team	skills or professionalism; organising capacity; cooperation; result oriented work	deductive	yes
West et al. (1998)	fully functional team; social team; disfunctional team; cold efficiency team	the extent of social reflection and task reflection	inductive	yes
Katzenbach & Smith (1993)	working group; pseudo team; potential team; real team; high performing team	team performance	inductive	yes

**Table 2.7***Team typologies based on Diversity of team members*

Auteur	Labels	Variables	Inductive Deductive	Empirically vallidated
Ancona & Caldwell (1992)	tenure homogeneous groups ; tenure diverse groups  functional homogeneous groups; functional diverse groups	coefficient of variation of team members' tenure in the organization; amount of functional diversity	deductive	yes
Campion et al. (1993)	degree of heterogeneity	areas of expertise, backgrounds and experiences, skills and abilities	deductive	yes
Harrison et al. (1998)	surface level (demographic) diversity; deep level (attitudinal) diversity	race, ethnicity, sex, age; attitudes (job satisfaction, organizational commitment, values of the team members	deductive	yes
Jackson S.E. (1996)	homogeneous teams; bipolar teams	readily detected attributes of diversity versus underlying attributes; task-related or relations-oriented attributes of diversity.	inductive	yes
Mayo et al. (1996)	index of demographic group heterogeneity (0= low heterogeneity, 1= high heterogeneity)	gender, race, age, tenure	inductive	yes
Milliken & Martins (1996)	diversity in observable attributes; diversity in underlying attributes	race/ethnic background, nationality, age, gender; values, skills and knowledge, cohort membership	deductive	no
Webber & Donahue (2001)	less job-related diversity; highly job-related diversity	age, gender, race/ethnic; functional, educational, occupational	deductive	no

Many scholars focus on studying one-dimensional team typology. Most research only examines the goals and organizational aspects of teams (Table 2.4, 2.5). Savelsbergh (2005) has developed an integrative team typology, which included four general dimensions of teams from the literature (mission, structural features, maturity, and diversity of team members). The integrative team typology was presented in a decision tree. The team types and their labels are categorized by reviewing existing team typologies in the literature. This decision tree can be used as a guide for team selection for this research.

From these four team typologies, they integrated into one decision tree as below:

**Figure 2.2**

*Integrative Team typology*

<b>MISSION</b> Variables: Team task	Operational teams		Management teams	Project teams	Coordination teams	Specialist teams
	Knowledge	Routine				
<b>STRUCTURE</b> Variables: - nature of division of responsibilities	Hierarchical teams			Shared responsibility teams		
	Small task variety		Medium task variety		Broad task variety	
	- variety of job regulation tasks					
- interdependency within the team	Low interdependency			High interdependency		
<b>MATURITY</b> Variables: Team competences (at the team level) knowledge, skills, attitude	Starting up team		Potential team		Fully functional team	
<b>DIVERSITY</b> Variables: - relations-oriented characteristics - job-related characteristics	Homogeneous team		Heterogeneous on relations-oriented Homogeneous on job-related		Homogeneous on relations-oriented Heterogeneous on job-related	
					Heterogenous team	

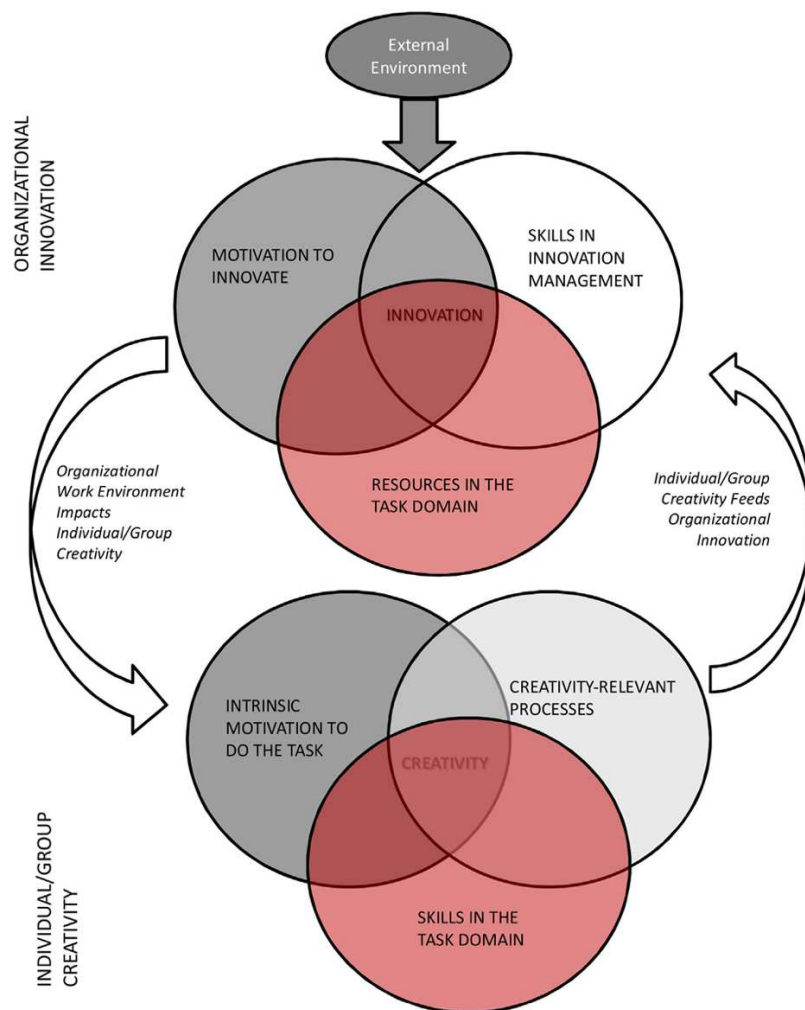
## 2.3 Existing models and theories of team creativity

### 2.3.1 The dynamic componential model of creativity

According to Amabile (1996), creativity is defined as "an idea, product or solution that is both novel (original) and useful (high quality, meaningful)" (Amabile, 1996). According to this definition, individual creativity involves generating new and practical ideas or solutions using one's relevant skills, expertise, and motivation for the task at hand (Amabile's (1988) Componential model of creativity).

**Figure 2.3**

*An abstraction of the components influencing innovation and creativity and how they interact.*



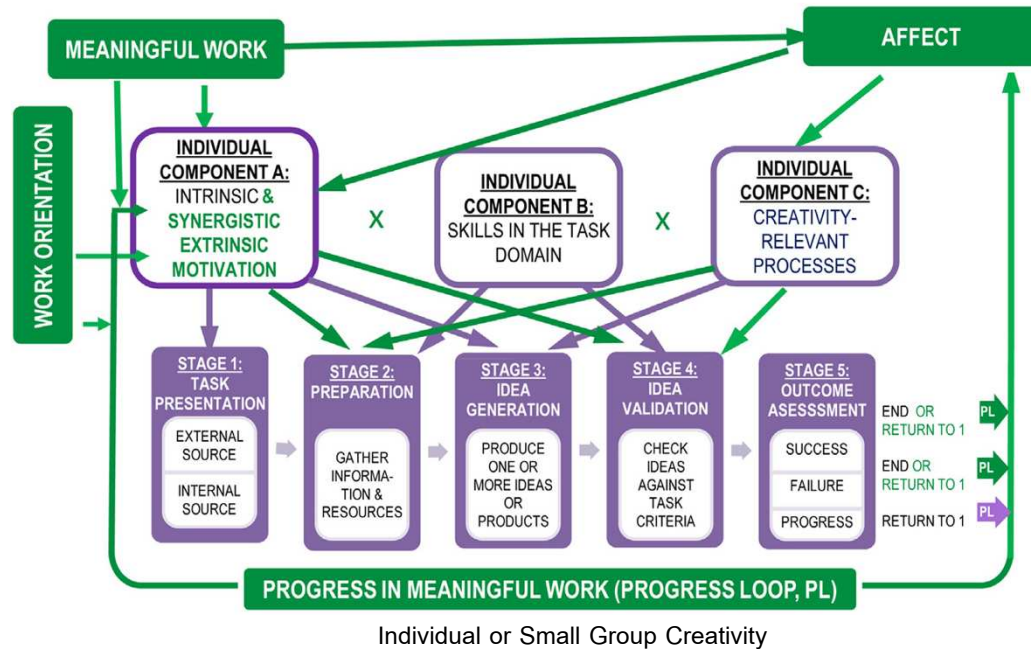
Domain expertise or domain-relevant skills is everything that a person knows and can do in the field domain of his or her work (Amabile, 1998). Skills, knowledge, or talents that are necessary for competent performance within a specific field are referred to as domain-relevant skills (Amabile, Conti, & Coon, 1996). It includes the technical, procedural, and intellectual requirements of a given domain. It does not matter how a person gains expertise, such as through formal and informal education, memory and knowledge about the domain, technical skills, practical experience or interaction with other professionals, and a unique creative talent to the domain.

Creative thinking skills or creativity-relevant skills refer to how people approach problems and solutions – their capacity to combine and connect pieces of knowledge (ideas) in a completely new way (Amabile, 1998). The skills themselves depend on personality as well as on how people think and work. Thus, creative thinking skills include personality, cognitive styles, and creativity-relevant processes such as an idea generation, which is defined as the ability to generate multiple possibilities (Cropley, 2006).

Motivation refers to what people will actually do and will fully engage their domain expertise (domain relevant) and creative thinking skills (creativity relevant skills). Motivation includes intrinsic motivation, which is defined as "a person's internal desire to do something," and extrinsic motivation, which is from outside of the person (Amabile, 1998).

Figure 2.4

*The dynamic componential model of creativity*



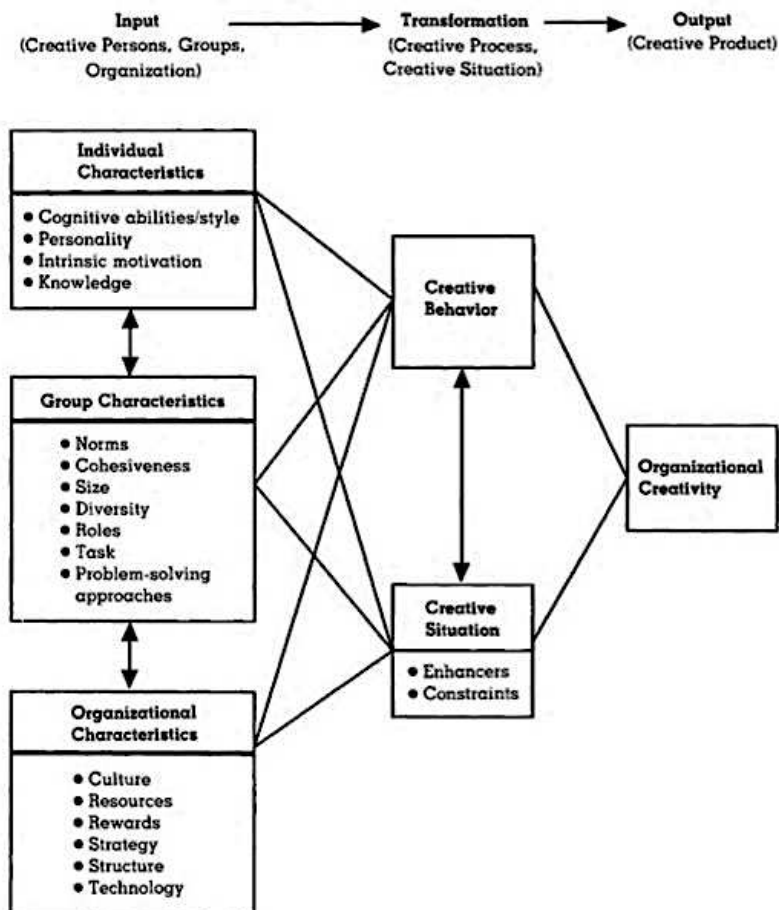
Amabile and Pratt (2016) expanded upon the Componential Theory of Creativity by introducing the Dynamic Componential Model of Creativity, depicted in Figure 2.4. This comprehensive framework takes into account creativity and innovation at the individual, team, and organizational levels. In addition to recognizing the significance of expertise, creative-thinking skills, and intrinsic motivation, they highlighted several other crucial boundary conditions that significantly influence creativity and innovation within these contexts. These factors encompass work orientation, the meaningfulness of tasks, and emotional states (i.e., affect).

In summary, this broader perspective on creativity and innovation acknowledges the complex interplay of individual, team, and organizational factors and emphasizes the importance of considering a range of elements, including emotions and work-related attitudes, to better understand and enhance creative outcomes.

### 2.3.2 Interactionist model of team creativity

Figure 2.5

*Interactionist model of creativity (Woodman & Schoenfeldt, 1989).*



The interactionist model of team creativity has gained significant attention in recent years as organizations increasingly recognize the importance of fostering creativity in the workplace. This model emphasizes the importance of individual, team, and organizational factors in driving creative outcomes. The interactionist model of team creativity is grounded in the notion that creative behavior is influenced by a complex interplay of individual, team, and organizational factors (Woodman & Schoenfeldt, 1989). This model has been further developed and refined by numerous

scholars, drawing on insights from psychology, sociology, and management studies (Gilson, Grosser, and Harrison, 2017; Woodman, Sawyer, & Griffin, 1993).

Individual factors are critical in shaping creative behavior, with research exploring the role of divergent thinking, personality, intrinsic motivation, and diversity of knowledge (Woodman, Sawyer, and Griffin, 1993). These factors are essential for understanding the unique contributions of each team member and for promoting creative behavior within the team.

Team factors, such as the quality of teamwork, communication, and collaboration, play a vital role in fostering creativity in the workplace. Research has shown that teams with high levels of trust, psychological safety, and shared goals are more likely to exhibit creative behavior and produce innovative outcomes (Somech & Drach-Zahavy, 2013).

Organizational factors, including culture, leadership, resources, and processes, are critical in shaping creative behavior at the team level. Studies have shown that organizations with supportive cultures, strong leadership, and adequate resources are more likely to develop a creative workforce and achieve long-term sustainability (Somech & Drach-Zahavy, 2013).



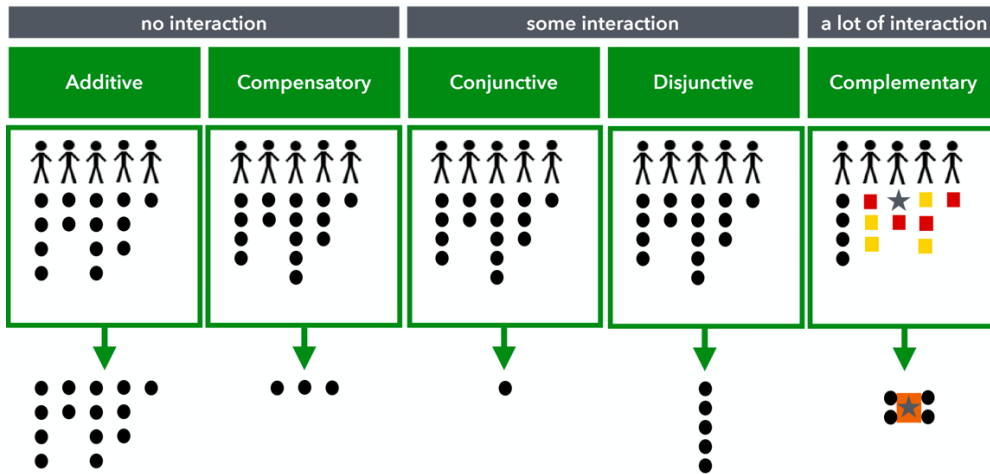
### 2.3.3 Steiner (1972) model of group creativity

Steiner (1972) created "a system that explains the different ways that team members' performance can be combined, and it can be described as how group/team creativity is organized." The work of the team can be added together, limited by the last member, averaged, selected, or combined in any way the team decides (Figure 2.6):

1. Additive means that all contributions add to the performance; each member of the team or group contributes to their own right; and the team or group's output is the total of the outputs of all members.
2. Compensatory performance allows for mistakes to be made by one team member on behalf of the group. Each member works on their assigned tasks independently, without any collaboration, and the group's end result is an average of individual performances.
3. Conjunctive is operated at the level of the lowest performer. Every member needs to contribute and do their part to ensure success.
4. At Disjunctive, success is measured by the performance of the highest performer. If each individual member of the group or team succeeds, then the entire group or team will also succeed.
5. A complementary team is a group that works together to create a collective product that is better than anything one individual could produce alone. This is achieved by combining a diverse range of abilities, skills, knowledge, and other resources, resulting in a whole that is greater than the sum of its parts.

Figure 2.6

*Steiner's model of group combination*



## 2.4 Input-Process-Output (IPO) and Input-Mediator-Outcome (IMO) model

Scholars have expanded on theories of individual creativity to include the team level, identifying individual traits and contextual factors that promote team creativity. (Baer et al., 2008; Gong et al, 2013). Another existing theory of team was found in the small group research. The scholars in this group have conducted research about team phenomena in general. They proposed the models to understand how team functions. The Input-Process-Output (IPO) model was used in many studies to present the factors that foster teams (e.g., team effectiveness). Later the IMO model (Input-Mediator-Output-Input) was introduced (Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Mathieu et al., 2008). In order to represent the factors/dimensions of team creativity, many scholars adopt the IPO and IMO models as their main components. So, Input-Process-Output serves as a basis for classifying team-level variables. The following explains what IPO model and its components.

**Table 2.8**

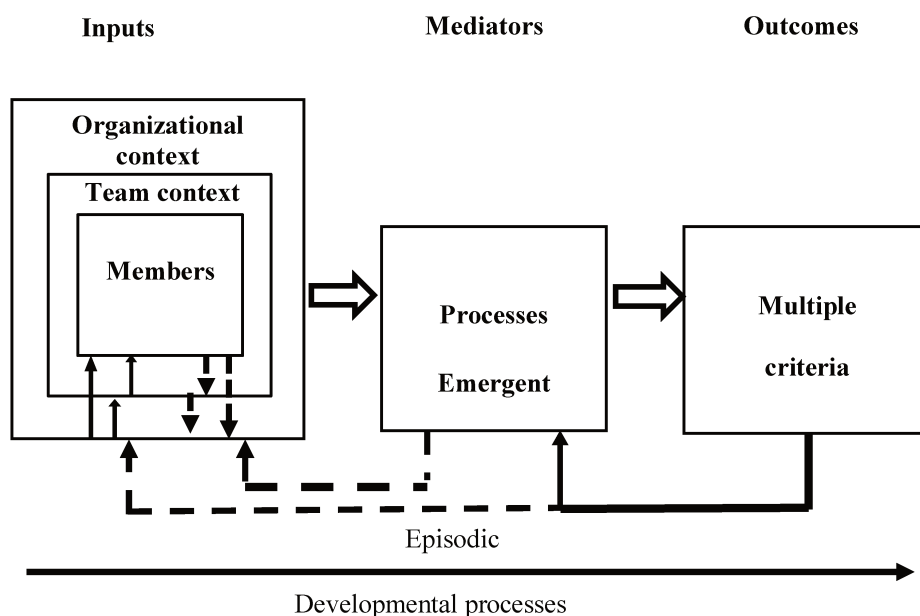
*Input-Process-Outcome (IPO) Model*

IPO Model	
Inputs	<p>Antecedent factors that enable and constrain members interactions</p> <ol style="list-style-type: none"> <li>1. Individual team member characteristics (e.g., personality, competencies)</li> <li>2. Team-level factor (e.g., task structure, external leader influences)</li> <li>3. Organizational and Contextual factors (e.g., organizational design features, environmental complexity)</li> </ol> <p>These various antecedents combine to drive “team processes”</p>
Processes	<p>Processes which describe members’ interactions directed toward task accomplishment.</p> <p>Processes describe how team inputs are transformed into outcomes.</p>
Outcomes	<p>Outcomes are results and by-products of team activity that are valued by one or more constituencies, these may include “performance” (quality and quantity) and members’ affective reactions (satisfaction, commitment, viability).</p>

However, IPO models have failed to differentiate multiple types of “processes” and “outcomes.” “Many of the mediational factors that transmit the influence of (team) inputs to outcomes are not processes” (Ilgen et al., 2005, p.520). Mark, Mathieu, and Zaccaro (2001) stressed that team processes involved team members’ actions, whereas other mediators are better seen as cognitive, motivational, or affective states as they can be called “emergent states” (e.g., psychological safety). Therefore, Ilgen (2005) coined the phrase “Input-Mediator-Outcome” (IMO) model to differentiate it from the IPO model. In addition, Mathieu (2008) modified and developed the recent versions of the well-known IMO model that many scholars still use until today (Figure 2.7).

**Figure 2.7**

*Input-Mediator-Outcome (IMO) Team Effectiveness Framework (Mathieu et al., 2008)*



Many scholars have mentioned that "Time" plays critical role in functioning of teams which is not enough explaining in IPO models (Marks et al, 2001). The development of temporal dynamics in teamwork presents the significant approaches of times; 1. Developmental models, and 2. Episodic approaches.

**Table 2.9***Times in IMO Model*

Time	1. Developmental models	How teams qualitatively change and are differentially influenced by various factors as they mature over time (Kozlowski, Gully, Nason & Smith, 1999).
	2. Episodic approaches	Teams must execute different processes at different times, depending on task demands that recur in a cyclical fashion (Mark et al, 2001).

In Figure 2.7, there is a solid line at the bottom., developmental processes unfold overtime as the team mature. Feedback loops are episodic processes, as previously described. Ilgen (2005) described the cycle nature of team functioning as IMOI (Input-Mediator-Output-Input).

Team effectiveness includes many different forms such as performance, creativity and combinations, so what constitutes “effectiveness” has become more complex.

In this research, we refer to one type of effectiveness as creativity or level of creativity in teams or Team creativity.

Furthermore, the following describes what IMOI model and its components:

#### **2.4.1 Team composition inputs**

According to Mathieu (2008, p.433), "Team composition research focuses on the attributes of team members and the impact of the combination of such attributes on processes, emergent states and ultimately outcomes." Kozlowski and Klein (2000) introduced individual inputs to team mediators included composition and compilation processes.

The composition process is a simple combination of rules, such as the average of lower-level units to represent the higher-level construct; all lower-level units are compared and weighted equally in the higher-level construct. In contrast, “compilation models, which are the higher phenomenon, is a complex combination of diverse lower level contributions, for example, team creativity maybe influenced by the least (or most) competent individual member” (Kozlowski & Klein, 2000, p.17). Two approaches for team compositional models are; 1. Mean values, 2. Diversity indices and complex combinations are for compilation model.

**Table 2.10**

*Team composition inputs (Mathieu, 2008)*

Team composition inputs	
<p>Mean values</p> <p>“The form of emergence that underlies the average member attributes is referred to as summary index. The pooled value of a characteristic is presumed to affect a team regardless of how that characteristic is distributed among members (Barrick et al., 1998; Stewart, 2006).”</p>	<p>Personality</p> <p>Personality factors have been considered beyond Big 5 and included achievement orientation, dependability (LePine, 2003), assertiveness (Pearsall &amp; Ellis, 2006) and locus of control (Boone, Van Olffen, Van Witteloostuijn &amp; De Brabander, 2004).</p> <p>Big 5 personality factors:</p> <ol style="list-style-type: none"> <li>1. Neuroticism</li> <li>2. Extraversion</li> <li>3. Openness to experience</li> <li>4. Agreeableness</li> <li>5. Conscientiousness</li> </ol>
	<p>Competencies</p> <p>The knowledge, skills and abilities (KSAs) needed for effective performance different from those needed by person working alone and the interaction required in team setting introduced a unique set of team working KSAs.</p> <ul style="list-style-type: none"> <li>• Knowledge</li> <li>• Skills</li> <li>• Abilities</li> </ul>

	<p><b>Cognitive Abilities</b>          “The functional amount of cognitive ability in teams does indeed predict team performance across a broad variety of team contexts (Devine &amp; Philips, 2001, p.523).”</p> <hr/> <p><b>Other attributes</b></p> <p><b>Goal orientation</b>          An individual’s approach to achievement situations (Dweck, 1986).</p> <p><b>Teamwork orientation</b>          Propensity for accomplishing work as part of a team as opposed to individually (Driskell &amp; Salas, 1992)</p> <p><b>Group value consensus</b></p> <p><b>Openness to diversity</b></p>
<p><b>Diversity</b></p> <p>Diversity factors consider the influence of heterogeneity of team member characteristics on team mediators and outcomes (Chen et al, 2004).</p>	<p><b>Demographic</b></p> <ul style="list-style-type: none"> <li>• Age</li> <li>• Tenure</li> <li>• Education</li> <li>• Race/Ethnicity</li> <li>• Gender</li> <li>• Time</li> </ul> <p>Three ways diversity interaction</p> <ul style="list-style-type: none"> <li>• Tenure</li> <li>• Gender</li> <li>• Ethnic diversity</li> </ul> <hr/> <p><b>Functional diversity</b>          The range of experience and expertise available to a team</p> <p><b>Personality</b>          Heterogeneity in personality traits</p> <p><b>Attitudes/values</b></p>
<p><b>Complex combinations</b>          (Compilation model)</p>	<p><b>Faultiness</b>          Refers to hypothetical dividing lines that split a group into subgroups based on one or more attributes (e.g. demographic, functional and educational background, geographical location etc.) (Lau &amp; Mumighan, 1998).</p> <hr/> <p><b>Position and status issues</b>          Team composition research that focused on relative position or status often attends only to the highest or lowest individual composition score in a team. The assumption that a single person such as the most intelligent team member can have signification and disproportional influence on a team as can be shown in Steiner (1972) task classification.</p>

	<p>Network features</p> <p>Research that examines network features associated with teams focuses on the social connections (ties) that link members between and within teams (Borgatti &amp; Foster, 2003).</p>
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## 2.4.2 Team-level inputs

**Table 2.11**

*Team-level inputs (Mathieu, 2008)*

Team-level inputs	
<p>Interdependence</p> <p>“The extent to which team members cooperate and work interactively to complete tasks” (Stewart &amp; Barrick, 2000, p.137).</p>	<p>Types of interdependence</p> <p>Input interdependence Team members’ level interaction is shaped by their individual skill sets and the extent to which they must share resources and technologies (Wageman, 1995).</p> <p>Process interdependence The way in which the work is structured that affect the level of interdependence of a team (Wageman, 1995).</p> <p>Outcome interdependence Individual feedback and rewards should be linked to the group’s performance in order to motivate group-oriented behavior (Campion et al., 1993, p.827).</p>
<p>Technology/Virtuality</p>	<p>“Technological advancements have allowed organizations to make greater use of virtual teams (VT; Kanawattanachai &amp; Yoo, 2002).</p>
<p>Team Training</p> <p>Refers to a systemic, planned intervention aimed at facilitating the development of job-related KSAs (Goldstein, 1992).</p>	<p>Individual versus intact-team training</p> <p>Delivery system</p> <p>Embedded</p>



<p>Team Leadership</p> <p>External team leaders, team coaching, and shared leadership</p>	<p>External leadership External team-oriented leadership represents the traditional paradigm and focuses on the influence of a leader who is responsible for, and has authority for, the team's performance.</p> <p>Coaching "Refers to direct interaction with a team intended to help members make coordinated and task-appropriate use of their collective resources in accomplishing the team's work" (Hackman &amp; Wageman, 2005, p.269).</p> <p>Shared leadership "Refers to an emergent team property resulting from leadership functions being distributed across multiple team members rather than arising from a single, formal leader (Carson, Tesluk &amp; Marrone, 2007).</p>
<p>Team structure</p> <p>Team are structured as it "serves as a bridge between organizational-level strategy decisions and staffing decisions" (Hollenbeck et al. 2002 p.600).</p>	<p>Functional departmentalization Occurs when individuals within a team are organized according to the similarity of the tasks they will perform.</p> <p>Divisional team departmentalization Organizes individuals within the team based on the geographic area served and/or the specific type of product for which they are responsible.</p>

### 2.4.3 Organizational/Contextual Inputs

**Table 2.12**

*Organizational/Contextual inputs (Mathieu, 2008)*

Organizational/Environmental Contexts	
<p>Organizational Contexts</p> <p>"The extent to which team members cooperate and work interactively to complete tasks" (Stewart &amp; Barrick, 2000, p.137).</p>	<p>Human resource systems</p> <p>Openness climate (Lawler, 1993)</p> <p>Multiteam systems coordination (MTSs) (Gully, 2000, p.32)</p>
<p>Environmental Context</p>	<p>TMT–environment interface</p> <p>Cultural influence on teams</p>

#### **2.4.4 Mediator – Team Outcome Relationships**

"Mediators consist of a set of psychological mechanisms that permit team members to combine the available resources for performing the work assigned by the organization, overcoming the difficulties involved in the coordination and motivation of their members" (Rico et al., 2011, Mathieu, 2008).

**Mediators include:**

1. Processes
2. Emergent states
3. Blended Mediators: the blending of processes and emergent states.

Team processes were classified into task work (which refers to individual functions necessary to achieve the team's objective) and teamwork (which pertains to the communication and interaction between team members), as stated by McIntyre and Salas in 1995. Later on, Mark (2001) introduced a taxonomy of processes that encompasses three categories: transition, action, and interpersonal.

**Table 2.13***Processes in IMO model (Mark, 2001; Mathieu, 2008)*

Processes	1. Transition processes	“Team members focus on activities such as mission analysis, planning, goal specification and formulating strategies.”
	2. Action processes	Members concentrate on task accomplishments, monitoring progress and system, coordinating team members and monitoring and backing up their fellow team members.
	3. Interpersonal processes	It includes conflict management, motivation and confidence building, and affect management and maybe salient across episodic phases.
	4. Other processes	Not all team processes fall into these 3 categories such as “Team Creative Processes” defined as “members working together in such a manner that they link ideas from multiple sources, delve into unknown areas to find better or unique approaches to the problem, or seek out novel way of performing a task” (Gilson & Shalley, 2004, p.454)

Scholars have extensively argued the idea that creativity is a crucial factor in driving team effectiveness (Taggar, 2002). Gilson (2005) also supports this idea, showing that team creative processes have a positive impact on performance. Furthermore, the study found that high levels of standardization and creativity lead to increased customer satisfaction levels, as highlighted by Gilson et al. (2005).

## 2. Emergent states

"Cognitive, motivational and affective states of teams (that are) ... dynamic in nature and vary function of team context, inputs, processes and outcomes" (Mark et al., 2001, p.357). Many scholars have focused on emergent states such as team confidence, empowerment, team climate, cohesion, trust, and collective cognition (such as shared mental models).

**Table 2.14***Emergent states in IMO model (Mark, 2001; Mathieu, 2008)*

Emergent states		
<p>Team confidence</p> <p>Underlying beliefs are shared by all team members.</p>	<p>Team efficacy</p> <p>Relates to team's belief that it can be successful in a specific task.</p>	<p>"A shared belief in a group's collective capability to organize and execute course of action required to produce given levels of goal attainment" (Kozlowski &amp; Ilgen, 2006, p.90).</p>
	<p>Potency</p> <p>Refers to a team's more general sense of its capabilities in relation to various tasks and different contexts.</p>	<p>"A collective belief regarding the team's ability to be successful" (Shea &amp; Guzzo, 1987).</p>
<p>Team empowerment</p>	<p>Structural empowerment</p>	<p>The impact that the actual practice of delegating authority and responsibility can have on performance.</p>
	<p>Psychological empowerment</p>	<p>"A team's collective belief that they have authority to control their proximal work environment and are responsible for their team's functioning" (Mathieu et al., 2006, p.98).</p>
<p>Climate</p>	<p>Safety Climate</p>	<p>Team members feel safe and have courage to speak up...</p>

<p>“The set of norms, attitudes and expectations that individuals perceive to operate in a specific social context” (Pirola-Merlo, Hartel, Mann &amp; Hirst, 2002, p.564)</p> <p>Conceptualization as Organizational-level construct</p>	<p>Service Climate</p>	<p>Employees’ assessment of the organization’s concern for customer well-being (Borucki &amp; Burke, 1999).</p>
	<p>Justice Climate</p>	<p>“Distinct group-level cognition about how a work group as a whole is treated” (Naumann &amp; Bennett, 2002, p.882).</p>
<p>Cohesion</p>	<p>The commitment of team members to the team’s overall task or to each other includes 3 dimensions:</p> <ol style="list-style-type: none"> <li>1. Interpersonal</li> <li>2. Task</li> <li>3. Group pride</li> </ol> <p>(Goodman, Ravlin &amp; Schminke, 1987).</p>	
<p>Trust</p>	<p>“The willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control the other party” (Mayer, Davis &amp; Schoorman, 1995, p.712).</p>	
<p>Collective Cognition</p>	<p>Shared Mental Models (SMMs)</p> <p>“An organized understanding or mental representation of knowledge that is shared by team members” (Mathieu et al, 2005, p.38).</p>	<p>Task SMMs Team members hold a common schema regarding their task and the potential role that broader environment may play.</p> <p>Team SMMs Represents a shared understanding among team members about how they will interact with one another.</p>
	<p>Strategic consensus</p> <p>Represents the agreement on strategic priorities.</p>	<p>“The shared understanding of strategic priorities among managers at the top, middle and operating levels of the organization” (Kellermanns et al., 2005, p.721).</p>

**Table 2.15***Blended Mediators in IMO model (Mathieu, 2008)*

Blended Mediators	
Team learning	<p>Team learning is said to represent an ongoing process of reflection and action, through which teams acquire, share, combine and apply knowledge (Edmondson, 1999).</p> <p>Reflection and Action</p> <ul style="list-style-type: none"> <li>• Acquire</li> <li>• Share</li> <li>• Combine</li> <li>• Apply</li> </ul> <p>Embedded Knowledge “Requires that teams codify what they have learned by documenting their work processes and then converting tacit knowledge into explicit knowledge” (Gibson &amp; Vermeulen, 2003).</p> <p>Knowledge Codification Represents a state that characterizes what a team has learned at any given time (Cohendet &amp; Steinmueller, 2000).</p>
Behavioral Integration	<p>“A state of behavioral integration exists when teams engage in the 3 processes:</p> <ul style="list-style-type: none"> <li>• Quantity and quality (richness, timeliness, accuracy) of information exchange</li> <li>• Collaborative behavior</li> <li>• Joint decision making</li> </ul> <p>(Hambrick, 1994, p.189).”</p>
Transactive Memory	<p>Transactive memory systems (TMSs) have been defined as the collection of knowledge possessed by each team member and a collective awareness of who knows what within a team (Wegner, 1986).</p>

In order to study team creativity, some scholars have proposed these models on social and collaborative creativity, and there have been some extensive reviews of this literature that have provided a clear picture (e.g., Hülsheger, Anderson, & Salgado, 2009; Reiter-Palmon, Wigert, & de Vreede, 2012; Cirella, Radaelli & (Rami) Shani, 2014). These studies use an Input-Process-Output (IPO) model to explore Team

input and Process variables that can be seen as the dimensions and factors of Team Creativity. From the study of Hülsheger, Anderson & Salgado (2009), the comprehensive quantitative meta-analysis has shown 15 variables that are important for Team-level creativity and innovation.

**Table 2.16**

*Team-Level variables (Input-Process-Output) for Creativity and Innovation (Hülsheger et al., 2009)*

<b>Input: Team Composition &amp; Structure (Ranked by most important variables)</b>	<b>Process (Ranked by most important variables)</b>	<b>Output</b>
1. Goal Interdependence 2. Team Size 3. Job Relevant Diversity 4. Task Interdependence 5. Team Longevity 6. Background Diversity	1. Vision 2. External Communication 3. Support for innovation 4. Task Orientation 5. Internal Communication 6. Cohesion 7. Participative Safety 8. Task Conflict 9. Relationship Conflict	level of creativity of the team production

In addition, Reiter-Palmon et al. (2012) added **social processes and cognitive processes** (Table 2.17).

**Table 2.17**

*Input-Process-Output model of Team Creativity (Reiter-Palmon et al., 2012)*

<b>Input: Team Composition in terms of individual characteristics of team members</b>	<b>Process</b>	<b>Output</b>
1. Demographic Diversity 2. Functional Diversity 3. Cognitive Style and Personality 4. Team Membership Change	<b>Social Processes</b> 1. Team Collaboration 2. Communication 3. Trust and Psychological Safety 4. Backup and Support 5. Team Conflict 6. Cohesion 7. Team Efficacy/Potency <b>Cognitive Processes</b> 1. Idea generation and Brainstorming 2. Creative Problem Solving Processes 3. Shared Mental Models 4. Team Reflexivity	level of creativity of the team production

Cirella et al. (2014) conducted a literature review to gather evidence on the important concepts related to team creativity in management, organization, and innovation. They then presented their findings in the IMOI model, which outlines these key concepts as follows:

**Figure 2.8**

*The IMOI model of Team creativity (Cirella et al., 2014)*

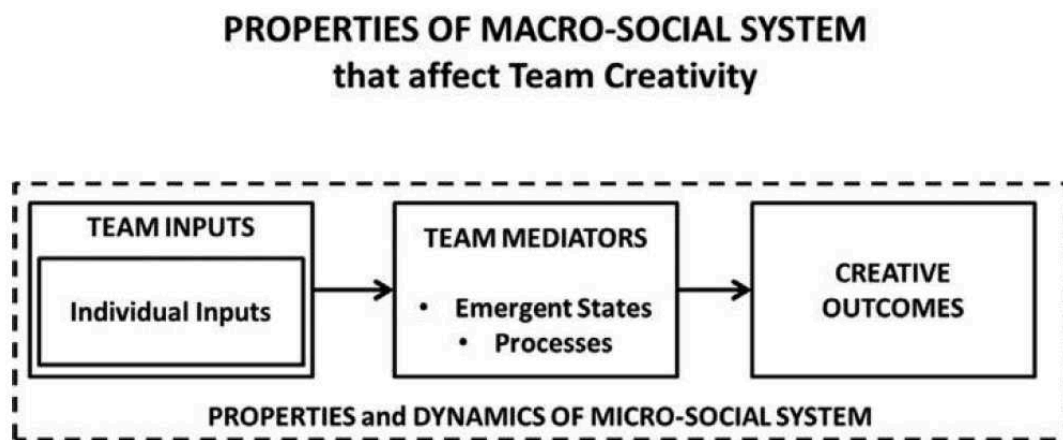




Table 2.18

*The IMOI model of Team creativity (Cirella et al., 2014)*

Inputs	Process	Properties of macro- social system
<p><b>Individual-level inputs</b> Individual characteristics in terms of:</p> <ol style="list-style-type: none"> <li>1. Basic demographics (age, sex and education)</li> <li>2. Culture</li> <li>3. Motivation</li> <li>4. Personality</li> <li>5. Skills, abilities and knowledge</li> <li>6. Individual creativity</li> <li>7. Prior experience in the task</li> <li>8. Membership changes and extension of the group</li> </ol> <p><b>Team-level inputs</b></p> <ol style="list-style-type: none"> <li>9. Leadership within/outside the team</li> <li>10. Transactional/transformational leadership</li> <li>11. Democratic/autocratic leadership</li> <li>12. Leader creativity</li> <li>13. Conflicts over leadership</li> </ol> <p><b>Resource available to the team</b></p> <ol style="list-style-type: none"> <li>14. Time need for closure</li> <li>15. Technical and technological support</li> <li>16. Budget</li> <li>17. Physical spaces</li> <li>18. Energy zones</li> <li>19. Team dimensions</li> </ol>	<p><b>Team-level mediators:</b></p> <p><b>Processes</b></p> <p><b>Interaction between team members</b></p> <ol style="list-style-type: none"> <li>1. Quality of relationships</li> <li>2. Maturity of relationships</li> <li>3. Team cohesiveness</li> <li>4. Team longevity</li> <li>5. Fear of evaluation</li> <li>6. Conformity vs dissent, debate and competing views</li> <li>7. Majority/minority dynamics</li> <li>8. Communication patterns</li> <li>9. Conflicts</li> </ol> <p><b>Interaction between team and non-team members</b></p> <p><b>Cognitive Processes</b></p> <ol style="list-style-type: none"> <li>10. Social networks</li> <li>11. Professional networks</li> <li>12. Bridging different realities</li> </ol> <p><b>Team learning</b></p> <ol style="list-style-type: none"> <li>13. Training programmes</li> <li>14. Team-based learning tools</li> <li>15. Learning community</li> <li>16. Cognitive skills</li> <li>17. Personal integrity</li> </ol> <p><b>Team development: Cognitive phases and Progression of emotional states</b></p> <ol style="list-style-type: none"> <li>18. Divergent/convergent thinking</li> <li>19. Psychosocial safety/trust</li> <li>20. Collaboration/competition</li> <li>21. Group emotional tone</li> <li>22. Socialization process</li> <li>23. Team-building dynamics</li> <li>24. Team emotional intelligence</li> </ol> <p><b>Team-level mediators:</b></p> <p><b>Emergent states</b></p> <p><b>Team climate</b></p> <ol style="list-style-type: none"> <li>25. Clarity of objectives</li> <li>26. Participation in decision-making</li> <li>27. Quality and support for innovation</li> <li>28. High care</li> </ol> <p><b>Affective states</b></p> <ol style="list-style-type: none"> <li>29. Trust</li> <li>30. Empathy</li> <li>31. Safety</li> </ol>	<p><b>Work environment</b></p> <ol style="list-style-type: none"> <li>1. Variables in Amabile's KEYS model (organizational and supervisory encouragement, work group support, resources)</li> </ol> <p><b>Organizational culture</b></p> <ol style="list-style-type: none"> <li>2. Variables in West's team climate for innovation model (vision, participative safety, task orientation, support for innovation)</li> </ol> <p><b>Climate for creativity</b></p> <ol style="list-style-type: none"> <li>3. Variables in Ekvall's model (challenge, freedom, idea support, trust/openness..)</li> </ol> <p><b>Virtual team</b></p> <ol style="list-style-type: none"> <li>4. Autonomy</li> <li>5. Collaboration</li> <li>6. Highly involving work systems</li> <li>7. Inside/outside networks</li> </ol>

All of these models are based on a fundamental principle: how inputs are transformed into outcomes through processes and emergent states. This principle can also be applied to team creativity, which can be broken down into four components:

1. Team composition inputs (which include individual inputs such as personality and contextual factors)
2. Collective processes (which inputs are entered in various form of configurations)
3. Team structures refer to the configuration of team inputs and the embedding of team processes.
4. In addition, Cirella et al. (2014) added properties of a macro-social system that affect team creativity, such as Work environment, Organizational culture, and Climate for creativity.

Some scholars (12 out of 193 papers) use Input-Process-Output (IPO) or Input-Mediator-Outcome (IMO) framework to start as a basis for classifying the variables of team-level creativity. Therefore, this research also uses IMOT (Input-Mediator-Outcome-Time) framework from Mathieu (2008) for the criteria and dimensions classification.

## 2.5 How the researchers measure team creativity

When measuring team creativity, it is common to assess the process and the output of the team's creative endeavors. These two dimensions provide a holistic understanding of how creative and innovative a team is. The team creative process dimension focuses on the creative processes and behaviors within the team. It assesses the methods, interactions, and dynamics that contribute to creative thinking and problem-solving. Examples of key aspects of measuring team creativity process include:

- **Idea Generation:** Evaluating the team's ability to generate a variety of ideas and solutions, often using techniques like brainstorming.
- **Collaboration:** Assessing how well team members work together, share ideas, and build upon each other's contributions. Effective communication and cooperation are crucial components.
- **Diversity of Perspectives:** Recognizing and encouraging diverse viewpoints and perspectives within the team. Diversity can lead to more innovative solutions.

The team creativity output (Team Performance) dimension focuses on the tangible results or products of the team's creative efforts. It assesses the quality, novelty, and value of the team's creative outputs. Examples of key aspects of measuring team creativity output include:

- **Innovation:** Determining the degree to which the team's output represents novel and innovative solutions or ideas.
- **Quality of Ideas or Products:** Evaluating the overall quality, effectiveness, and feasibility of the ideas, products, or solutions generated by the team.

- **Impact:** Assessing the real-world impact or practicality of the team's creative work. Did it lead to positive outcomes or improvements?
- **Originality:** Measuring the uniqueness and originality of the team's contributions compared to existing solutions or ideas.
- **Implementation:** Consider whether the team successfully implemented or executed their creative ideas.

To measure these dimensions effectively, organizations often use a combination of methods, including surveys, assessments, observations, and evaluations of the actual creative work produced by the team.

Moreover, most observed tools used to assess team creativity aggregate from individual creativity. Quantitative methods are often the primary method used when measuring team creativity. The quantitative methods involve surveys and questionnaires that ask team members to rate their creativity or the creativity of their team as a whole, for example, the supervisor's or leader's rating assesses their teams' creativity (e.g., Oldham & Cummings, 1996; Shin & Zhou, 2007; Zhou & George, 2001). In order to avoid inflation, previous studies on team creativity have relied on team leaders' evaluations. Because relying only on self-reported evaluations from team members can result in biased findings (Gong et al., 2009; Scott & Bruce, 1994; Tjosvold et al., 2003). According to the suggestion of extant studies, "team creativity was measured by team leaders who can be reliable sources of team information." (e.g., De Dreu & West, 2001; Kratzer, Leenders, and Van Engelen, 2006; Pirola-Merlo & Mann, 2004; Shin & Zhou, 2007; Shalley et al., 2004; Sung & Choi, 2012; Tierney & Farmer, 2002; Tierney et al., 1999; Van der Vegt & Janssen, 2003). Thus, research has

proven that using evaluations from team leaders can prevent the occurrence of common method variance bias (Hofmann & Gavin, 1998).

Besides the leader's rating method, looking at the idea-generation tasks of the overall team as an output (e.g., De Dreu et al., 2008; Diedrich, Benedek, Jauk, & Neubauer, 2015; Janssen, 2000), team creativity was assessed by the independent raters of solutions generated in terms of novelty and usefulness of each team (e.g., Bechtoldt et al., 2010; De Dreu et al., 2008; Janssen, 2000). Researchers also use consensual assessment as a method to measure product creativity. This involves independent rating of each team product based on its uniqueness and level of creativity compared to others (Amabile, 1982; Amabile, 1983; Besemer & Treffinger, 1981; Hennessey & Amabile 1999).

In addition to quantitative methods, few studies use qualitative methods to measure team creativity. Qualitative methods involve observing team interactions, team processes, and outputs or conducting interviews with team members. Using qualitative methods, it provides a deeper understanding of the creative processes that teams use. This allows researchers to gain insights into the factors that promote creativity in teams, which can be used to develop strategies for fostering creativity in the workplace.

This research measures team creativity by analyzing the perceived satisfaction and performance of team leaders. A successful team creativity project is seen as having a positive impact on team creativity, while an unsuccessful project is seen as having a negative impact on team creativity.

## **2.6 Factors that influence team creativity**

Many scholars propose numerous factors related to team creativity. There are various factors that can influence team creativity, including personal and contextual characteristics, team composition, and climate for innovation (e.g., Somech & Drach-Zahavy, 2013; van Knippenberg, 2017; Zhou & Hoever, 2014). Additionally, leadership style can also impact team creativity (Bonner, Ruekert, & Walker, 2002). It is important for organizations to understand these factors in order to foster a creative environment and gain a competitive advantage (Shin et al., 2012). This section highlights some factors that influence team creativity in the literature. Eight domains are found as categories or dimensions of team creativity factors, including:

- Team composition
- Team structure/Team leadership
- Organizational and Environmental contexts
- Team creative processes (Idea generation)
- Team climate/cohesion
- Team learning
- Team longevity
- Time pressure

### **2.6.1 Team Composition**

Team composition is "the configuration of member attributes and characteristics within a team" (Levine & Moreland, 1990) and "is thought to have powerful influences on team processes and outcomes" (Kozlowski & Bell, 2003). It also refers to "the overall mix of characteristics among people in a team, which is a unit

of two or more individuals who interact interdependently to achieve a common objective" (Hackman & Wageman, 2005). Thus, team composition is an important factor that affects team creativity. Somech and Drach-Zahavy (2013) suggest that team composition plays a significant role in translating team creativity into innovation implementation. The authors argue that team composition affects the team climate for innovation (West and Anderson, 1996), which in turn influences the implementation of innovative ideas. Moreover, Perry-Smith and Shalley (2014) propose that team creativity can be enhanced by having members with diverse backgrounds and nationalities. The authors suggest that having members with heterogeneous ties outside of the team can positively impact team creativity. Pirola-Merlo and Mann (2004) argue that individual creativity and team creativity are related and that aggregating individual creativity can enhance team creativity. The authors suggest that team creativity can be improved by having members with high levels of individual creativity.

**Big five personality traits** are often referred to as the OCEAN model, which stands for Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (McCrae & Costa, 1987). Each of these traits is measured on a scale from low to high. People who score higher on Openness to Experience tend to be creative and curious. Those who score higher on Conscientiousness are organized and reliable. Extraversion is associated with being sociable and outgoing. Agreeableness reflects a person's ability to cooperate with others and be kind. Finally, people who score higher on Neuroticism tend to be more sensitive and prone to negative emotions like anxiety. Understanding the Big Five can help us gain insight into the personalities of creativity.

**Individual goal orientation** is an individual approach to a particular task or activity. It has been defined as "the degree to which individuals focus on the attainment of specific outcomes versus on the performance process." There are two types of goal orientation. Learning goal orientation refers to the desire to increase one's task competence (Dweck, 1988), whereas performance goal orientation reflects an eagerness "to do well and to be positively evaluated by others" (Phillips & Gully, 1997). Different individuals may have different levels of motivation depending on their personal goals and preferences. Research suggests that individuals who are more oriented towards learning tend to be more motivated and successful in learning tasks than those who are more oriented towards performance. Learning goal orientation is positively related to creativity, whereas performance goal orientation is not a significant predictor of creative performance (Gong et al., 2009; Hirst, Van Knippenberg, & Zhou, 2009).

**Individual creativity** refers to the way in which individual members of a team exhibit their creative abilities and fulfill their respective roles and tasks (Drazin et al., 1999). Creative individuals often display a wide range of habits and behaviors that enable them to come up with unique ideas (Hennessey & Amabile, 2010). They tend to be curious, open-minded, and willing to experiment. They are also able to look at problems from multiple perspectives, which allows them to come up with creative solutions. Finally, creative individuals tend to be flexible and able to take risks without being over-concerned about failure or rejection. By cultivating these traits, individuals can increase their potential for creativity. Creative individuals often possess unique traits like divergent thinking, risk-taking, and open-mindedness (Runco & Acar, 2012). Drazin (1999) suggests that for group creativity, individuals must first choose to engage



in creativity at the individual level. However, team creativity is not simply a measure of the average or sum of individual creativity. It is an outcome that emerges from collaborative and influential interactions among creative individuals (Drazin et al., 1999).

**Team diversity** has been identified as a key determinant of team creativity in various research studies (e.g., Hoever et al., 2012; Shin et al., 2012). Team diversity refers to "the distribution of differences among members of a team with respect to a common attribute" (Harrison & Klein, 2007, p.1)." The existing studies predict higher team creativity when team members are different in terms of task-relevant perspectives and knowledge" (Hoever et al., 2012). Cognitive team diversity, which refers "to differences in knowledge, skills, perspectives, and thinking styles," has been found to be particularly conducive to team creativity (Shin et al., 2012). Additionally, effective heterogeneity of ideas and knowledge among team members is crucial for promoting team creativity (Shin & Zhou, 2007). However, failing to manage team diversity effectively can lead to functional or relational conflict, which can hinder the generation of novel and useful ideas (Jehn, Northcraft, & Neale, 1999). In addition, a team-inclusive climate can moderate the effects of team diversity on knowledge sharing and creativity, enhancing positive effects and decreasing negative effects (Bodla et al., 2018).

### **2.6.2 Team structure/Team leadership**

The **team's structure** plays a crucial role in fostering team creativity. It enables open communication and the exchange of information from various sources relevant to creativity. Woodman (1993) highlighted that structure is one of the factors influencing group creativity and proposed that teams with an organic structure, as opposed to a

mechanistic one, are more likely to achieve creative outcomes. An organizational culture that encourages collaboration and a management style that fosters participation contribute to creating a team environment that is open to discussions and the generation of new ideas. Additionally, studies suggest that a less bureaucratic structure can enhance creativity (Amabile, 1996). An organic team structure can effectively enhance and support team creativity.

**Team leadership** plays a significant role in fostering team creativity. Effective team leaders provide guidance, support, and a conducive environment for creativity to thrive. They demonstrate transformational leadership behaviors such as inspiring vision, empowering team members, and promoting intellectual stimulation, which stimulates creativity and innovation within the team (Amabile et al., 2004; Shin & Zhou, 2007). Additionally, leaders who exhibit a participative leadership style encourage active involvement and contributions from team members, creating a sense of ownership and fostering a collaborative climate that enhances creativity (Eisenbeiss et al., 2008). Furthermore, supportive leadership behaviors, such as providing resources, recognition, and psychological safety, promote risk-taking and experimentation, allowing team members to explore unconventional ideas and approaches (Carmeli et al., 2010). By effectively leading and facilitating team processes, team leaders play a vital role in nurturing team creativity and maximizing the innovative potential of the team.

### **2.6.3 Organizational and environmental contexts**

**Organizational contexts and environmental contexts** are important factors that influence team creativity. Organizational contexts refer to the characteristics and structures within an organization that can either support or hinder team creativity.

Factors such as organizational culture, climate, and structures play a significant role in shaping the conditions for creativity within teams. Supportive organizational cultures that value innovation, provide autonomy, and encourage risk-taking can foster team creativity (Drazin et al., 1999; Zhou & George, 2003). Additionally, flexible and decentralized organizational structures promote collaboration and information flow, facilitating the exchange of diverse ideas and perspectives (Anderson, Potočnik, & Zhou, 2014). On the other hand, environmental contexts, including industry dynamics, competition, and market conditions, can also impact team creativity. For example, organizations operating in dynamic and turbulent environments may face higher pressure to innovate, leading to a greater emphasis on team creativity (Gong et al., 2009). The interaction between organizational contexts and environmental contexts creates a complex interplay that influences the level of support, resources, and constraints that teams experience in their creative endeavors.

#### **2.6.4 Team creative processes (Idea Generation)**

When it comes to the team creative process, one of the most important aspects is idea generation or ideation. This is where the team comes together to brainstorm ideas and concepts for a project. The ideation stage is all about coming up with as many ideas as possible. So, it is important to encourage team members to share their ideas without fear of judgment or criticism. This approach is backed up by research on group creativity, which suggests that "brainstorming sessions that involve a diverse group of individuals can lead to more innovative and effective solutions" (Paulus & Kenworthy, 2019). Overall, the team creative process is all about collaboration, communication, and creativity. By encouraging open communication during ideation, the team can

generate a wide range of ideas that lead to successful project outcomes (See 2.7 and Table 2.19).

### **2.6.5 Team climate/cohesion**

**Team climate for innovation** refers to "the shared perceptions of team members regarding the degree to which their work environment supports and encourages innovation" (West & Anderson, 1996). A positive team climate for innovation can foster creativity and lead to the development of new and innovative ideas (Anderson, Potočnik, & Zhou, 2014). Research has shown that team composition and climate for innovation are important factors in translating team creativity into innovation implementation (Somech & Drach-Zahavy, 2013). An inclusive team climate has been found to be a significant condition that has the positive effects of team diversity on team knowledge sharing and creativity (Bodla, Tang, Wanjiang, & Tian, 2016).

**Trust and Psychological safety** are important factors that contribute to team creativity. Team creativity is significantly influenced by two crucial factors: trust and psychological safety. Psychological safety refers "to the shared belief among team members that they can freely take interpersonal risks, such as expressing ideas or concerns, without facing adverse consequences" (Edmondson, 1999). On the other hand, trust is built on a team's confidence in its ability to achieve tasks without causing harm to individuals (Ilgen et al., 2005). Research by Gong (2013) and Reiter-Palmon (2012) has confirmed that trust is closely linked to creativity within a team. McAllister (1995) pointed out that trust relationships involve emotional investments, genuine care for partners' welfare, and belief in the intrinsic value of such relationships. This emotional bond lays the foundation for trust. A study by Gong (2013) revealed that

trust in the team leader plays a vital role in shaping information exchange and creative activities within a team. When trust in the team leader is weak, members are less motivated to engage in idea exchange related to team learning goals, thus limiting creativity. Psychological safety, as defined by Kahn (1990), refers to "the feeling of being able to express oneself without fear of negative consequences to self-image". Edmondson (1999) expanded this concept to the team level and introduced the idea of a psychological safety climate, which entails an environment characterized by role clarity, interpersonal trust, and respect for individuality. Such a climate fosters an atmosphere where team members can comfortably take interpersonal risks. Both psychological safety and trust are linked to the willingness of team members to openly discuss information (Salas et al., 2005). In instances where trust is low, conflicts and disagreements arise within the team, resulting in negative responses and a lack of support from team members. Reiter-Palmon (2012) emphasized the importance of evaluating team composition and diversity as antecedents to trust, psychological safety, and team creativity. Additionally, communication or conflict within the team could mediate the relationship between trust, psychological safety, and team creativity.

The concept of **shared mental models** has been widely discussed in the literature. According to Klimoski & Mohammed, (1994), shared mental models refer to "a common understanding among the team members about relevant tasks and team aspects of their work". This understanding is crucial for effective communication and collaboration among team members, especially in the context of team creativity. Research has shown that shared mental models are positively related to team creativity (Santos, Uitdewilligen and Passos, 2015; Smith-Jentsch et al., 2008). Santos et al. (2015) also emphasized the importance of shared mental models in reducing conflicts

and misunderstandings that can hinder creativity. Thus, teams with shared mental models experience less intra-group conflict. Similar to the study by Smith-Jentsch et al. (2008), teams with shared mental models were found to be better at recognizing and correcting errors, resulting in improved team performance. When team members share a common mental model, they are more likely to engage in open and constructive discussions, exchange diverse ideas, and build on each other's contributions. This leads to a higher level of creativity within the team. Additionally, shared mental models can also enhance team effectiveness by improving decision-making, problem-solving, and task performance. Therefore, it is important for organizations to foster a culture that promotes the development and sharing of mental models among team members to enhance team creativity and innovation.

#### **2.6.6 Team learning**

**Team learning** refers to the acquisition, sharing, and integration of knowledge and skills within a team to enhance its collective capabilities and creative potential. Team learning encompasses both individual learning and shared learning processes that occur within the team context. Teams that engage in continuous learning are more likely to exhibit higher levels of creativity. By acquiring new knowledge, team members can bring diverse perspectives and ideas to the table, fueling creativity (Gong et al., 2009; Hirst et al., 2009). Shared learning processes, such as reflection, feedback, and collaborative problem-solving, contribute to shared understanding and enhance the team's ability to tackle complex challenges (Edmondson & Nembhard, 2009). Moreover, team learning fosters a supportive and psychologically safe environment that encourages risk-taking and experimentation, which is important for generating innovative solutions (Edmondson, 1999; Edmondson et al., 2004). By emphasizing and

nurturing team learning processes, teams can continuously expand their knowledge base, enhance their creative capabilities, and adapt to changing circumstances, which leads to promoting team creativity.

### **2.6.7 Team longevity**

**Team longevity**, referring to the duration of a team's existence, has been examined in the literature on team creativity. Previous research suggests that team longevity can influence team creativity in several ways. Firstly, teams that have been together for a longer duration tend to develop higher levels of shared understanding, trust, and cohesion, which can enhance creative collaboration (Gong et al., 2009; Mohammed & Nadkarni, 2011). Longevity allows team members to build on their collective experiences, develop effective communication patterns, and establish shared mental models, promoting a more efficient and effective exchange of ideas (Anderson & West, 1998; Katz, 1982). Moreover, longer-lasting teams often benefit from stable membership, enabling deeper exploration and development of innovative solutions. However, it is important to note that team longevity alone does not guarantee creativity. Team longevity can only provide a foundation for creativity, but it is the team's dynamic processes and adaptability that finally determine its creative outcomes.

### **2.6.8 Time pressure**

**Time pressure** refers to the constraints and urgency forced by limited time availability to complete tasks or achieve goals. Research suggests that time pressure can have both positive and negative effects on team creativity. On the one hand, moderate levels of time pressure can stimulate team members to focus their efforts, make quick decisions, and generate innovative solutions (Amabile et al., 2002; George & Zhou, 2001). The urgency created by time pressure can enhance motivation and

encourage teams to think creatively under constraints. However, excessive time pressure can lead to stress, reduced information processing, and reliance on conventional approaches, inhibiting divergent thinking and creative problem-solving (Amabile, 1998; Duan et al., 2020). The impact of time pressure on team creativity may also depend on other contextual factors, such as team experience, task complexity, and available resources (Hülshager et al., 2009; Paulus & Yang, 2000). Overall, to encourage team creativity, it is important to find the right balance of time pressure. This means setting a level that challenges team members without overwhelming them, so they can respond quickly and innovatively within the given time constraints.

## **2.7 Team creativity process**

The creative process is defined as "a succession of thoughts and actions leading to original and appropriate productions" (Lubart, 2001). Moreover, Kahn (1990) offers a brief and clear definition of engagement in creative processes, stating that it involves team members attempting new approaches to their work, both behaviorally, cognitively, and emotionally. Thus, it seems that the creative process is typically focused on three areas such as cognitive, behavioral, and affective processes.

Additionally, the literature on the creative process has extensively explored the concept of stage models for creative problem-solving. The pioneer in this field was Wallas (1926), whose seminal qualitative work conceptualized four linear stages for creativity to occur: Preparation, Incubation, Illumination, and Verification. Since then, various researchers have proposed their own stage models (see Table 19). Thus, the study of the creative process heavily relies on stage models, which have become an essential tool for researchers (Runco, 2004; Sadler-Smith, 2015). These models have led to the development of divergent thinking tests (such as Torrance, 1974) and insight



problem-solving tasks (Sternberg & Davidson, 1995). However, these models have been criticized for assuming that creativity follows a linear process. Montag, Maertz, & Baer (2012) argue that the creative process is a dynamic and reiterative process that requires both divergent and convergent thinking, which qualitative evidence largely supports (Hargadon & Bechky, 2006).

From Table 2.19, it can be observed that the creative process typically follows a three-stage structure. Therefore, the stages often include preparation, ideation, and the selection of ideas.

**Table 2.19**

*Examples of Creative process stage models and Mapping onto Three-Stage Models (Preparation, Ideation, Selection)*

Model	Preparation		Ideation		Selection		Implementation Innovation		Individual/Team
1. Wallas (1926)	Preparation		Incubation	Illumination	Verification				Individual
2. Osborn (1953)	Exploring the vision	Formulating challenges	Exploring ideas	Formulating solutions	Exploration Acceptance		Formulating a plan		Individual
3. Rhodes (1961)	Identifying a Problem or Opportunity		Gathering Ideas		Evaluating, Modifying, and Selecting Ideas				Individual
4. Osborn (1963)	Fact finding		Idea finding		Solution finding				Individual
5. Amabile (1983)	Problem or Opportunity Identification	Preparation	Idea generation		Idea Evaluation				Individual
6. Amabile (1988)	Task presentation	Preparation	Idea generation		Idea Validation	Outcome Assessments			Individual
7. Torrance (1988)	Identifying Problems		Making Guesses	Formulating Hypothesis	Discussing Ideas with Others				Individual
8. Shaw (1989)	Immersion		Incubation	Illumination /Insight	Explain	Creative Synthesis	Validation		Individual
9. Taggar (2002)	Preparation		Synthesis of the team's ideas				Goal Setting/ Strategy to Achieve Team Goal	Participation	Team
10. Nemiro (2002)			Idea generation		Idea development		Idea finalization/ closure	Idea Evaluation	Team
11. Reiter-Palmon & Illies (2004)	Problem identification construction	Information Search and Encoding	Idea and Solution Generation		Idea Evaluation and Selection		Implementation Planning and Monitoring	Conclusion	Individual/Team
12. Hargadon & Bechky (2006)	Help Seeking	Help Giving	Reflective Reframing		Reinforcement				Team
13. Zhang & Bartol (2010)	Problem identification	Information Searching and Encoding	Idea and Alternative Generation						Individual
14. Botella (2013)			General idea or "vision"		Documentation/ Reflection	First sketches; Testing forms or ideas	Provisional object/ Draft; Final work/ Series		Individual
15. Sadler-Smith (2015)	Preparation		Incubation	Intimation; Illumination	Verification				Individual

### 2.7.1 Preparation Stage

The initial phase of the creative process, known as the "Preparation" stage according to Wallas's (1926) model, involves problem identification and gathering relevant information for developing a solution (Carson, 1999). Creativity is sparked by an incident or idea encountered by an individual (Doyle, 1998). This stage is crucial in the creative process, as research has shown that how individuals engage in problem identification and construction significantly influences their creativity (Getzels and Csikzentmihalyi, 1975). Similar findings have been observed in real-life problem-solving and divergent thinking tasks (Okuda, Runco & Berger, 1991; Reiter-Palmon, Mumford, & Threlfall, 1998). In the context of this research, "Preparation" is defined as the process of searching for improvement opportunities, which includes identifying the existence of an opportunity and defining the goals and parameters of the problem or opportunity for improvement. Defining the problem is considered crucial according to the creative problem-solving literature, and the initial step in solving ill-defined problems is often referred to as "Problem Construction" (Getzels, 1979; Mumford et al., 1994). Notably, there is a lack of research on problem construction at the team level (Reiter-Palmon & Robinson, 2009).

### 2.7.2 Ideation Stage

According to Wallas (1926), the second stage occurs "Incubation" (Osborn 1953, 1963; Shaw, 1989; Sadler-Smith, 2015), which is in the "**Ideation**" phase. During the ideation phase, teams will work together to find solutions for the problem that was identified in the preparation phase. This stage involves gathering information to exchange ideas and generate novel ideas (Paulus & Yang, 2000). Ideation refers to the process of generating new and valuable solutions for potential opportunities. This

process demands effective sharing of knowledge and information among team members, along with consideration of different perspectives. Consequently, the team integrates and develops individual ideas to create practical and innovative solutions.

### **2.7.3 Selection Stage**

During the third stage, known as the “**Selection**” stage, a team has to determine the best idea from a range of ideas generated in the ideation phase. As noted by Reiter-Palmon et al. (2008), this stage involves evaluating the ideas and selecting the most promising ones. Usually, the idea selection process entails assessing ideas based on specific criteria to make a final decision. While at the individual level, idea selection is an intrapersonal process (Herman & Reiter-Palmon, 2011), at the team level, it becomes a more interactive and interpersonal endeavor. Although research on idea selection is relatively limited, findings suggest that teams are generally more proficient in choosing the best ideas compared to individuals (Mumford, Schultz & Van Doorn, 2001), particularly when they have fewer alternatives to consider (Mumford, Feldman, Hein & Nagao, 2001). In this research, Selection is defined as “the process of evaluating possible new ideas and selecting the best one”, the process ends with team members selecting the best available idea.

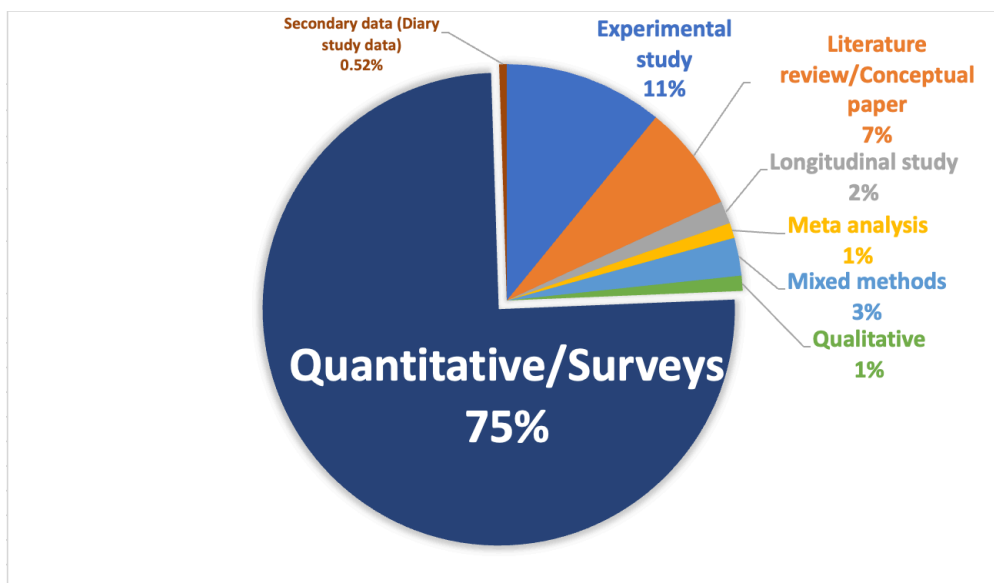
It is important to understand that this three-stage model does not necessarily imply a strict order of stages. The team creativity process model acknowledges that the creative process is dynamic and reiterative (Eindhoven & Vinacke, 1952). The primary aim of the model is to provide a comprehensive outline that encompasses the key components of the team creativity process.

## 2.8 Methodological approaches used in the studies

Through the literature review, 193 references were selected to review and discuss what is known about the team creativity research field. Figure 2.9 shows the types of research that have been conducted about team creativity.

**Figure 2.9**

*Team and Group creativity literature methodologies*



Out of 193 papers that were selected, 75% of research was conducted quantitatively, followed by a Literature review/Conceptual paper at 7%. It can be seen that only 1% of research was done using Meta-analysis and 3% using mixed methods. Other 11% for experimental study can also be counted as quantitative research. It is interesting to note that very few studies (1%) used a qualitative research approach.

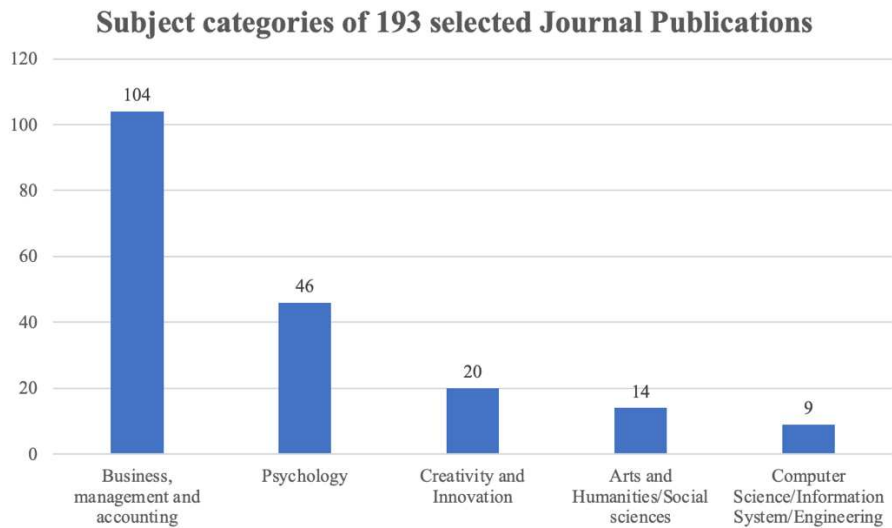
**Figure 2.10***Subject categories of 193 selected references*

Figure 2.10 indicates that the majority of research on team creativity has been conducted in the fields of business and management, with psychology, creativity and innovation following behind. Additionally, categories such as art and humanities/social science, as well as computer science/engineering, are in the minority of team creativity research field.

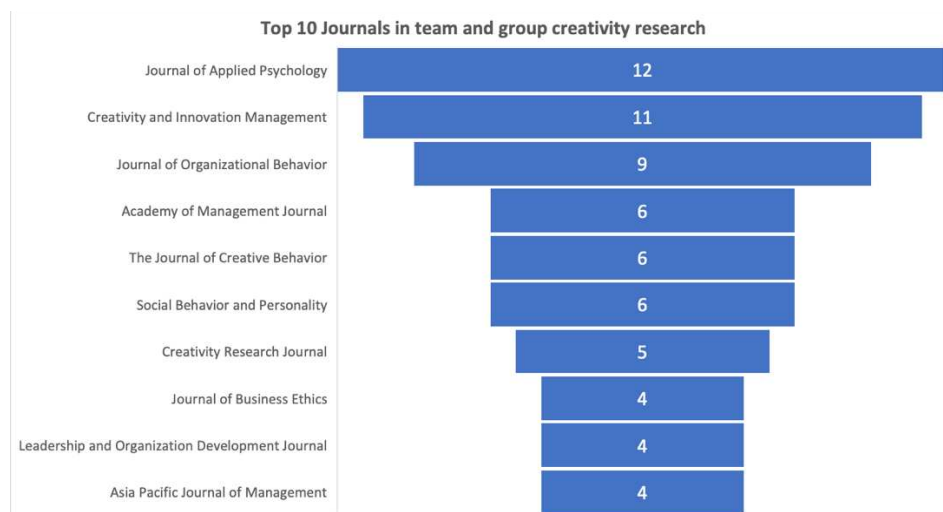
**Figure 2.11***Top 10 Journal in Team/Group creativity literature*

Figure 2.11 shows the top 10 Journals for Literature Review. Most common journals include Journal of Applied Psychology (12) and Creativity and Innovation Management (11), Journal of Organizational Behavior (9), Academy of Management Journal (6), Journal of Creative Behavior (6), Social Behavior and Personality (6). The wide spread of journals can be described as the subject or topic as the scope of team and group in creativity and innovation management.

## **2.9 Identify the gaps and inconsistencies in the literature**

From **Table 2.20**, A review of the literature on team creativity was conducted, and there are some research gaps that have been identified. Firstly, in previous studies, scholars have often used the terms "Team Creativity" and "Group Creativity" interchangeably, which can cause confusion. Most team creativity research relies on Quantitative methodology specifically in laboratory settings, indicating a lack of Qualitative research (Methodological Gap). Studying team creativity through Qualitative research can be improved by clarifying its current disorganized and superficial dimensions. Moreover, many scholars suggest that team creativity is influenced by multiple factors, which can create challenges for researchers and managers in terms of managing them effectively (Practical-Knowledge Gap). Due to numerous factors of team creativity that cannot easily be managed, we need more research and go further from the Literature Review. In order to understand all the factors that influence team creativity, a Systematic Literature Review was conducted. This will involve researching and categorizing all the relevant factors mentioned in previous studies (to answer the question of what factors influence team creativity **in theory**). We will then test these factors with real managers in the field to see how they play out in

practice (to answer the question of what factors influence team creativity **in practice**). We will study the team creativity processes using the Critical Incident Technique (CIT) to determine if there were any incidents that were not influenced by the team's characteristics. This is because team creativity is situation-dependent and context-specific. Studying team creativity in a practical setting can bring new knowledge to the literature and offer valuable advantages to the field.

**Table 2.20**

*The Seven Research Gaps Definitions and Localization Strategy*

*Source: Robinson, Saldanha, & McKoy (2011); Müller-Bloch & Kranz, (2015); Miles, (2017).*

Type of Research Gap	Definition	Localization Strategy
<b>Evidence Gap</b> (Contradictory Evidence Gap)	Results from studies allow for conclusions in their own right, but are contradictory when examined from a more abstract point of view.	Synthesize key findings and determine contradictions.
<b>Knowledge Gap</b> (Knowledge Void Gap)	Desired research findings do not exist.	Analyze literature with regard to theoretical concepts (e.g., using the chart method) and look for specific gaps or under-researched areas of research.
<b>Practical-Knowledge Gap</b> (Action-Knowledge Conflict Gap)	Professional behavior or practices deviate from research findings or are not covered by research.	Collect information about action and relate this information to the knowledge base
<b>Methodological Gap</b> (Method and Research Design Gap)	A variation of research methods is necessary to generate new insights or to avoid distorted findings.	Scrutinize if findings on a certain topic are inconclusive with regard to applied research methods.
<b>Empirical Gap</b> (Evaluation Void Gap)	Research findings or propositions need to be evaluated or empirically verified.	Analyze if research findings have been evaluated and empirically verified.
<b>Theoretical Gap</b> (Theory Application Void Gap)	Theory should be applied to certain research issues to generate new insights. There is lack of theory thus a gap exists	Analyze the theories that have been employed to explain certain phenomena and identify further theories that might contribute to the knowledge base as well.
<b>Population Gap</b>	Research regarding the population that is not adequately represented or under-researched in the evidence base or prior research (e.g., gender, race/ethnicity, age and etc).	Analyze the research population that have been studied.



## **2.10 Chapter Summary**

Based on existing literature, the study of team creativity is still messy and lacks clarity. Quantitative research, especially in laboratory settings, was dominant in studying team creativity. There are several dimensions that are specific to team creativity and others that are not. Therefore, it is necessary to explore in greater detail and develop a model for team creativity dimensions. So, we will develop the model based on a Systematic Literature Review. So that we can see clearly what are the dimensions of team creativity and what are the factors that influence either the positive or negative of team creativity.

Additionally, we will gather insights from managers, who may simplify the dimensions to some extent. It is important to note that team creativity is context dependent, which is project specific. Therefore, we choose to analyze through the Critical incident approach.

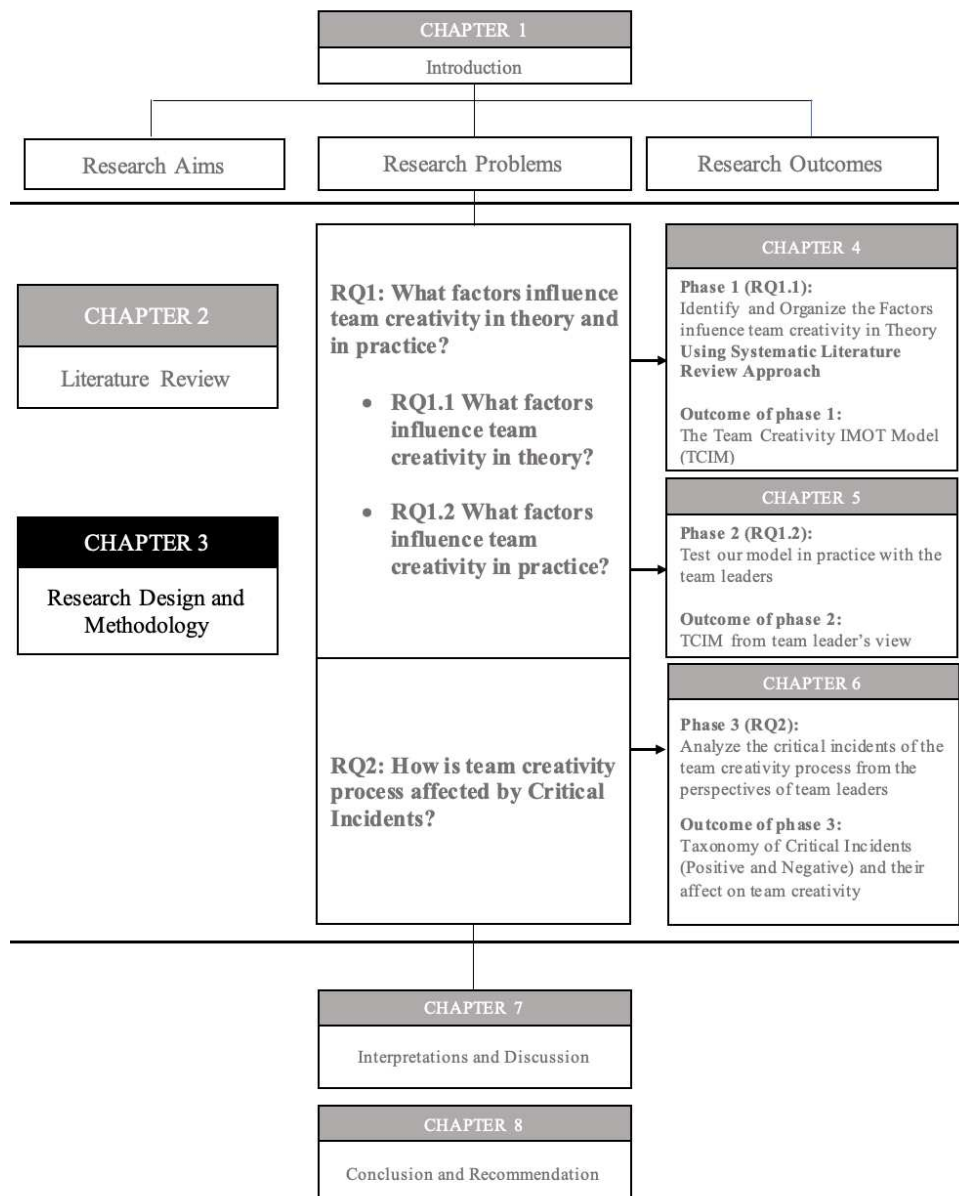
## CHAPTER 3

### RESEARCH DESIGN AND METHODOLOGY

#### 3.1 Introduction

**“Good, sound research projects begin with straightforward, uncomplicated thoughts that are easy to read and understand.”**

(Creswell, 2014)



The research design is the architecture of research or the plan for a study that includes a framework representing research questions, literature review, data collection, data analysis, and results. In this chapter, first, we start by presenting the research onion as a guiding framework for methodology selection for this research; including philosophy, approach to theory development, methodological choices, strategy(ies), time horizon, and techniques and procedures.

Our research philosophy was based on pragmatism, as it aligned with our research design. Pragmatism was a philosophical approach that prioritizes practicality, problem-solving, and the belief that knowledge and research methods should be evaluated based on their effectiveness in addressing real-world issues and solving practical problems. Abduction was used as an approach for theory development, combining deductive and inductive methods. The use of abduction enabled researchers to tackle inconsistencies and build theories that are more robust and flexible. This method proved particularly valuable in dealing with complex or inadequately understood phenomena where current theories proved insufficient.

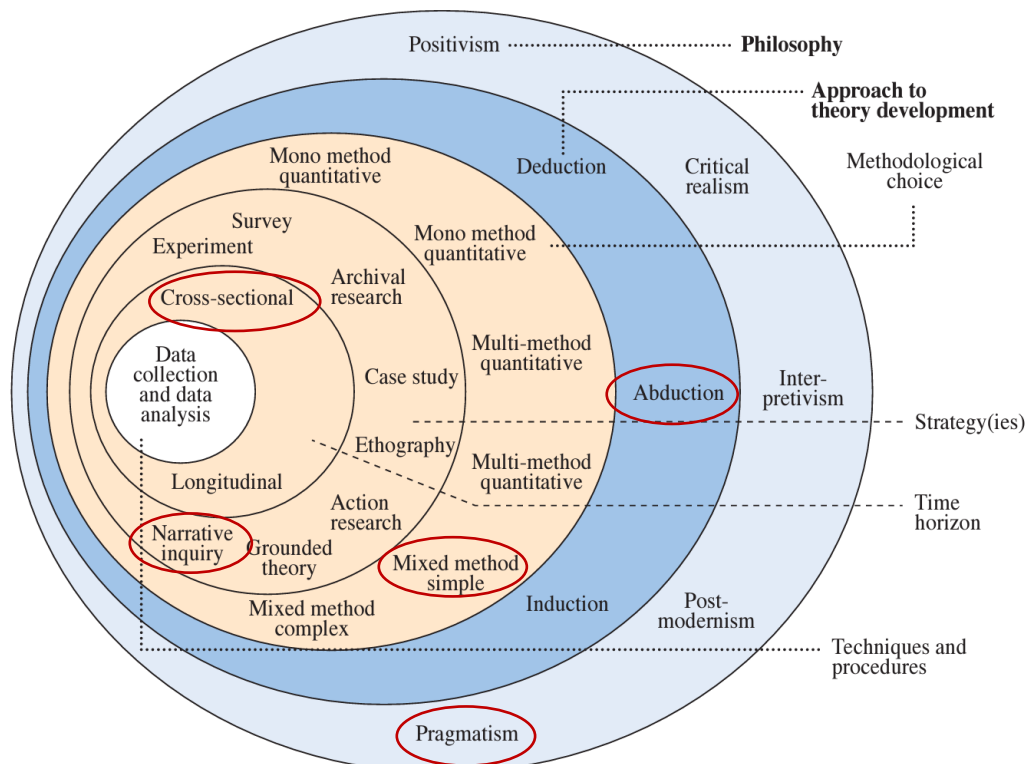
Moreover, this research used a combination of quantitative and qualitative methods known as embedded mixed methods. This approach involved integrating one research method within another to provide a more comprehensive and suitable understanding of the problem under investigation. This technique helped to triangulate data from different sources or perspectives, resulting in a more accurate and reliable research outcome. Additionally, a pilot study was conducted to ensure the method of the main study. The data collection and data analysis, which involved gathering and processing data to answer research questions, are also discussed in this chapter.

Saunders et al. (2012, 2019) proposed the research onion framework as a guideline for academics to develop their research methodology. Following the steps present in the research onion, Saunders et al. (2019) divided the research onion into 6 layers:

1. Philosophy
2. Approach to theory development
3. Methodological choice
4. Strategy(ies)
5. Time horizon
6. Techniques and procedures

**Figure 3.1**

*Research Onion as a guiding framework for methodology selection for this research*



### 3.2 Philosophy: Pragmatism

As our philosophical assumptions (choice of research philosophy) were based on Pragmatism, it provided a philosophical basis for this research as follows:

- “Pragmatism is not committed to any one system of philosophy and reality. This applies to mixed methods research in that inquirers draw liberally from both quantitative and qualitative assumptions when they engage in their research. Individual researchers have the freedom of choice. In this way, researchers are free to choose the methods, techniques, and procedures of research that best meet their needs and purposes.” (Creswell, 2014)
- Pragmatists believe that the world is not an absolute unity. Similarly, mixed methods researchers do not limit themselves to only one approach for collecting and analyzing data but rather explore multiple methods, such as quantitative and qualitative.
- In mixed methods research, researchers utilize both quantitative and qualitative data as they offer the most comprehensive insight into a research problem. This is because the truth is what works at the time.
- Researchers who take a pragmatic approach focus on determining what and how to research based on the desired outcomes they hope to achieve.
- Pragmatists have believed “in an external world independent of the mind as well as that lodged in the mind. But they believe that we need to stop asking questions about reality and the laws of nature (Cherryholmes, 1992). They would simply like to change the subject” (Ross, 1983, p. xiv)” (Creswell, 2014).

Therefore, pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis. We

believed that pragmatism can serve as the philosophical partner for the qualitative research approach. Pragmatism focused on “what works,” which opened all possible options for doing research. We clarified ontological, epistemological, and axiological stances for pragmatism as the combination and integration of both quantitative and qualitative paradigms’ points of view and not conflicting philosophies.

This research adopted multiple realities for our ontological and epistemological choices, using an abductive approach that started from our exploratory research phase (inductive). Additionally, we also used a deductive approach to objectively test our theories and model. Not only systematic literature review (SLR) was the first step in exploring dimensions and factors that influence team creativity in theory (RQ1.1), but also entering the field was a must for further exploring and confirming our factors in practice (RQ1.2). Hence, pragmatism was the best fit for this research because we used various methods for collecting and analyzing data rather than only sticking to one way.

**Table 3.1**

*Pragmatism philosophy*

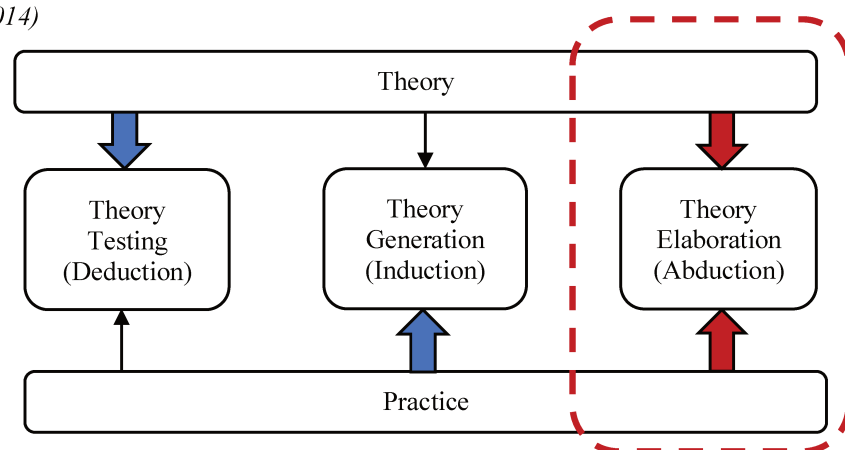
<b>Pragmatism philosophy seeks to improve practice by the application of <u>concepts</u></b>			
<b>Ontology assumption</b> (nature of reality)	<b>Epistemological assumption</b> (What constitutes acceptable knowledge)	<b>Axiology assumption</b> (role of values)	<b>What methods do you follow to undertake such a study?</b>
<ul style="list-style-type: none"> <li>- The reality is complex, external and practice emerging out of an idea</li> <li>- The reality constitutes a flow of processes, experience, and practices</li> <li>- There are multiple reality</li> </ul>	<ul style="list-style-type: none"> <li>- The research contributes one or more of the following aspects as a knowledge:               <ul style="list-style-type: none"> <li>- Practical knowhow</li> <li>- The knowledge that turns into practice <u>in a given context</u></li> <li>- Knowledge is something that enables actions, solve a problem, improve practice and process</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- The values of researcher and the respondents drive the research-value-driven research</li> <li>- The research process get started with the problem that is most valued by the researcher or the affected social unit</li> <li>- Researcher is reflexive</li> </ul>	<ul style="list-style-type: none"> <li>- Multiple research approach and methods appropriate to answer the research question(s) and find practical solutions to research problem are used</li> <li>- Range of methods: Qualitative, Quantitative, Mixed multiple and action research</li> </ul>

### 3.3 Approach to theory development: Abduction

This research used an abduction approach. Since we started with a model of team creativity as a result of a systematic literature review (SLR) (what factors influence team creativity in Theory). We adopted a deductive and inductive approach at the same time (Abductive approach) in order to refine the model. So, an abductive approach was introduced in this research. By entering the field investigation, we can further explore and confirm our dimensions and factors (what factors influence team creativity in Practice). In other words, we wanted to know whether the dimensions/factors can be applied in the creative field by first using a deductive approach. Additionally, we used interviews to collect data and then refined the theory building (Induction). Thus, we can provide an explanation of how the theoretical model can be applied in the field. Moreover, in the second phase (RQ2), we used a Critical incidents technique (Flanagan, 1954) that pointed out the critical events that may cause positive and negative effects on the team creativity process. As seen in Figure 3.2, this research selected the abduction approach, which is related to theory elaboration.

**Figure 3.2**

*Deductive, Inductive, and Abductive research and the selected approach (Adapted from Ketokivi and Choi, 2014)*



### 3.4 Methodological Choice: Mixed method simple

The three research designs or strategies of inquiry (Denzin & Lincoln, 2011) were not only useful in choosing the type of study, but they also provided direction for the design procedures.

**Table 3.2**

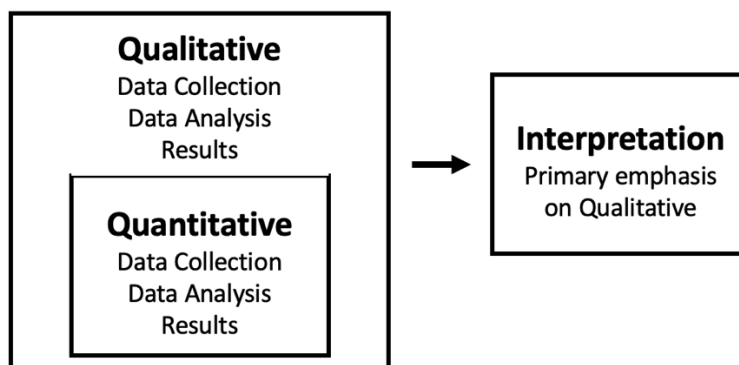
*Three choices of Research Design*

Quantitative	Qualitative	Mixed Methods
<ul style="list-style-type: none"> <li>• Experimental designs</li> <li>• Nonexperimental design such as surveys</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Narrative research</b></li> <li>• Phenomenology</li> <li>• Grounded theory</li> <li>• Ethnographies</li> <li>• Case study</li> </ul>	<ul style="list-style-type: none"> <li>• Convergent</li> <li>• Explanatory sequential</li> <li>• Exploratory sequential</li> <li>• <b>Embedded or Nested Approach</b></li> </ul>

Mixed method Simple (Embedded or Nested Approach), Narrative inquiry research

**Figure 3.3**

*The Embedded or Nested Design*



We used the embedded mixed methods for the methodological choice and Narrative inquiry for the research strategy. The results of the Systematic Literature Review (Chapter 4) provided an answer to research question one (RQ1.1). The Systematic Literature Review method compiled all the dimensions and factors found in



all literature sources. In order to address research question one (RQ1.2) and research question two (RQ2), we used a nested or embedded mixed methods approach. This involved primarily using qualitative methods along with a small amount of quantitative data. There are several reasons why we selected embedded mixed methods in this research. Firstly, this approach allowed us for a more comprehensive understanding of the two research questions as it combined both qualitative and quantitative data. This provided a deeper perspective and helped to identify any contradictions in the data.

Additionally, embedded or nested mixed methods was useful when studying complex topics, as it allowed for both objective and subjective data to be collected and analyzed. Finally, using multiple research methods improved the validity and reliability of findings. To gather information from various sources, we used triangulation. Primary interview data was collected from team leaders and then team leaders were asked to rate the 8 dimensions on a 7-point Likert scale. Additionally, secondary data was obtained through a systematic literature review. Thus, we cross-checked results from interviews and questionnaires, leading to a more robust interpretation.

### **3.5 Strategy(ies): Narrative inquiry**

Narrative inquiry presented this research as a qualitative research approach that focused on the stories telling of people about their experiences and specific phenomenon (Clandinin & Connelly, 2000). Narrative inquiry research involved gathering data through interviews, observation, and analysis of texts. This research mainly focused on interview data. This narrative inquiry approach was a flexible approach that allowed us to explore the complexity of a person's experience. By drawing on personal stories and experiences, narrative inquiry research offered a unique

perspective that deepen our understanding of team creativity process in specific contexts and situations.

### **3.6 Time Horizon: Cross-Sectional**

The cross-sectional research design is a study approach that involves collecting data from a sample of individuals at a single point in time. One of the key benefits of cross-sectional research design is its ability to collect data efficiently and quickly at a lower cost compared to other research designs. However, it is essential to note that it has some limitations, such as the inability to establish causality or temporal relationships between variables. Despite these limitations, cross-sectional research design remained a practical and valuable tool for this research, which aimed to investigate and explore the concepts and practices of team creativity as a particular phenomenon.

### 3.7 Techniques and Procedures
















This section presents the research design for this research, data collection, and data analysis.

#### 3.7.1 Research design

Figure 3.4 shows the whole research design.

Figure 3.4

*The whole research design*

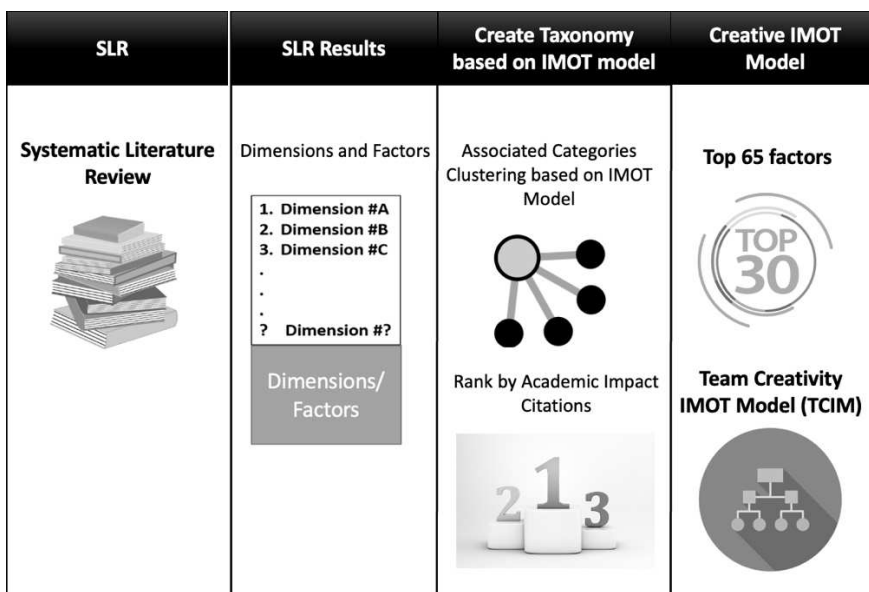
Research Design		SLR	SLR Results	Create Taxonomy based on IMOT model	Creative IMOT Model	Results
	<b>RQ1.1: What factors influence Team Creativity in Theory?</b>	Systematic Literature Review 	Dimensions and Factors 1. Dimension #A 2. Dimension #B 3. Dimension #C ... 7. Dimension #F Dimensions/ Factors	Associated Categories Clustering based on IMOT Model  Rank by Academic Impact Citations 	Top 65 factors  Team Creativity IMOT Model (TCIM) 	<b>Team Creativity IMOT Model (TCIM)</b>
	<b>RQ1.2: What factors influence Team Creativity in Practice?</b>	Model Team Creativity IMOT Model (TCIM) 	Test with practitioners Interview with Team leaders in the field  7 points Likert scale (Questionnaire) 	Results 1 Most important factors (Interview and Questionnaire results) 	Results 2 Enhancing Factors  Hindering Factors 	<b>TCIM from team leader's view</b>
	<b>RQ2: How is team creativity process affected by Critical Incidents?</b>	Model Team Creativity IMOT Model (TCIM) 	Test with practitioners Interview with Team leaders in the field 	Critical Incident Technique (CIT) Critical Incident technique (CIT) 	Results Positive or Negative Critical Incidents in team creativity process 	<b>Taxonomy of Critical Incidents (Positive and Negative) and their affect on team creativity</b>

### 3.7.1.1 Research design for RQ1.1

As shown in Figure 3.5, we created this research design for the purpose of answering the first research question (RQ1.1), **What factors influence team creativity in Theory?**

**Figure 3.5**

*The research design for answering RQ1.1: What factors influence team creativity in Theory?*









We answered research question RQ1.1 by first identifying and classifying all the dimensions of team creativity, as shown in Chapter 4 (Using Systematic Literature Review Approach).

### 3.7.1.2 Research design for RQ1.2

Regarding Research Question (RQ1.2), **What factors influence team creativity in Practice?**

**Figure 3.6**

*The research design for answering RQ1.2: What factors influence team creativity **in Practice?***

Model	Test with practitioners	Results 1	Results 2
<p><b>Team Creativity IMOT Model (TCIM)</b></p> 	<p>Interview with Team leaders in the field</p>  <p>7 points Likert scale (Questionnaire)</p> 	<p><b>Most important Factors</b> (Interview and Questionnaire results)</p> 	<p><b>Enhancing Factors</b></p>  <p><b>Hindering Factors</b></p> 

Narrative research was used to ask individuals to provide stories/views about their experience (Clandinin & Connelly, 2000). The narrative inquiry used field text such as stories and interviews, so the interview method was used for data collection for RQ1.2. The interview method can help us for an in-depth understanding of the phenomenon. In this case, we wanted to know in depth which factors of team creativity are most useful/critical for the teams for answering research question one (RQ1.2).

Additionally, the Seven-Likert scale survey was used as a quantitative method to ensure the alignment of Qualitative (Interview results). As simple mixed methods or Embedded or Nested mixed methods, we can propose a comprehensive framework based on modeling team creativity dimensions (from literature) and the study of team creativity in practice.




### 3.7.1.3 Research design for RQ 2

For the second research question (RQ2), **How is team creativity process affected by Critical incidents?**

We used in-depth interviews (Critical Incidents Technique) to gain information about participants' experiences or critical incidents on successful creative projects and not so successful creative projects in order to identify the critical events which may happen during the team creativity process.

**Figure 3.7**

*The research design for answering RQ2: How is team creativity process affected by Critical incidents?*

Model	Test with practitioners	Critical Incident Technique (CIT)	Results
<p data-bbox="308 1126 489 1178"><b>Team Creativity IMOT Model (TCIM)</b></p> 	<p data-bbox="531 1115 697 1162">Interview with Team leaders in the field</p> 	<p data-bbox="767 1115 895 1162">Critical Incident technique (CIT)</p> <p data-bbox="743 1245 922 1346"><b>CIT</b></p>	<p data-bbox="968 1081 1134 1173"><b>Positive or Negative Critical Incidents in team creativity process</b></p> 

### 3.7.1.4 Sampling for Qualitative Part

We conducted in-depth interviews with team leaders who represented their teams. For types of teams, we followed the criteria from Figure 3.8.

**Figure 3.8**

*Team typology from Savelsbergh (2005)*

<b>MISSION</b> Variables: Team task	<u>Operational teams</u>		Management teams	Project teams	Coordination teams	Specialist teams
	Knowledge	Routine				
<b>STRUCTURE</b> Variables: - nature of division of responsibilities - variety of job regulation tasks - interdependency within the team	Hierarchical teams			Shared responsibility teams		
	Small task variety		Medium task variety		Broad task variety	
	Low interdependency			High interdependency		
	Starting up team		Potential team		Fully functional team	
<b>DIVERSITY</b> Variables: - relations-oriented characteristics - job-related characteristics	Homogeneous team		Heterogeneous on relations-oriented Homogeneous on job-related		Homogeneous on relations-oriented Heterogeneous on job-related	
					Heterogenous team	

To have a diverse group in interviews, we used purposeful sampling to recruit team leaders based on specific criteria (See Figure 3.9). Following Creswell's (1998) recommendation, we believe that interviewing 20-30 team leaders should be sufficient.

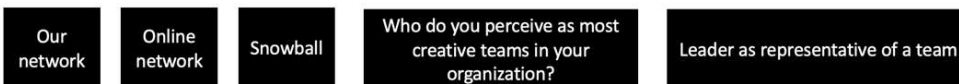
**Figure 3.9**

*The criteria for recruiting team leaders for interview.*

### Criteria for recruiting team leaders for interview

Our network (CEOs, VPs, Directors),  
Online network (LinkedIn)  
Snowball technique

It could be any type of teams in your organization as you think they are most creative. (as many teams as possible)



Our criteria also involved Thai organizations with teams consisting of more than two members, perceived by their top management as highly creative. We started by contacting top-level executives such as CEOs, VPs, and Directors through direct contact and online networks like LinkedIn. Additionally, the Snowball technique was also employed with the interviewees (team leaders/managers) recommending other individuals for interviews. We asked the top management which teams they believed were the most creative and request the names of team leaders for further interviews.

Creswell (1998) recommends conducting 20 to 30 interviews for a sufficient sample size. So, the research aimed to conduct interviews with participants until thematic saturation is achieved, which referred to the point where no new concepts arise from further interviews (Patton, 2002). According to Morse (2000), when enough information is collected, it enables a complete understanding of the subject under study.

In order to ensure unbiased findings, we only interviewed team leaders to represent their teams, as relying solely on self-reported evaluations from team members can result in biased results. Previous studies suggested that team leaders are reliable sources of team information for measuring team creativity. By using evaluations from team leaders, common method variance bias can be prevented, as research has proven. Some of the studies that support this approach include De Dreu & West (2001), Kratzer, Leenders, and Van Engelen (2006), Pirola-Merlo & Mann (2004), Shin & Zhou (2007), Shalley et al. (2004), Sung & Choi (2012), Tierney & Farmer (2002), Tierney et al. (1999), and Van der Vegt & Janssen (2003).



### 3.7.1.5 Pilot study

A pilot study was conducted to ensure the method of the main study. This is a small-scale preliminary study that was conducted before the main study to test the research methodology and identify any potential issues that may arise. The pilot study helped to refine the research methodology and ensure that the main study run smoothly. This allowed us to test the research questions and methodology. In addition, it identified any gaps in the research questions and helped refine them to ensure they are concise and clear. Additionally, the pilot study helped identify potential issues with the research design, such as data collection methods, sampling techniques, and data analysis tools. By conducting a pilot study, we improved the quality of the research study and ensured that they were accurate and valid conclusions.

## 3.7.2 Data collection

### 3.7.2.1 Data collection for RQ1.1

#### **Systematic Literature Review Approach for Collecting Data**

We used the Systematic Literature Review (SLR) Approach to answer RQ1.1: What factors influence team creativity in theory? Our inclusion and exclusion criteria for selecting articles for SLR were as follows:

Basic inclusion criteria included publications in English, which were published in journals and peer-reviewed between the all years 1963 - MAY 2022. The articles must not duplicate of the same work, Title and Abstract of the papers have keywords related to "Creativity" and "Innovation."

- ***Detailed inclusion criteria***

These criteria deal with the answers to RQ1.1

RQ1.1 What factors influence team creativity in **Theory**?

Therefore, we transferred the research questions to SLR questions:

SLR Q1.1. What are the evidences in the literature that identify the dimensions and factors influence Team Creativity? or What are the evidence in the literature that mentions the factors of Team Creativity?

In addition, the studies/papers answered some of the following SLR questions:

1. Articles that describe What Team Creativity is.
2. Articles that discuss Team Creativity and process of Team Creativity.
3. Articles that mention about dimensions or factors of Team Creativity.
5. Articles that explain concepts related to Team Creativity

**Table 3.3**

*Inclusion criteria for the systematic review*

<b>Inclusion criteria for the systematic review</b>	
<b>Criterion Type</b>	<b>Inclusion criteria</b>
<b>Topic</b>	The studies must relate directly to one of the SLR questions and goals of the research, also these studies must relate to the concepts of Team/Group Creativity <ul style="list-style-type: none"> <li>• What are the dimensions and factors of Team/Group Creativity?</li> <li>• What are the evidences in the literature that identify the dimensions and factors influence Team/Group Creativity? or What are the evidences in the literature that mentions about the factors of Team/Group Creativity?</li> </ul>
<b>Recency</b>	The studies should have been published between all years. (although newest studies of relevance to the review objectives were also manually included)
<b>Language</b>	English
<b>Research base</b>	The studies must be based upon empirical research (qualitative or quantitative) or conceptual research or relevant chapter in books (manually added)
<b>Peer Reviewed</b>	The studies must be full-text and peer reviewed
<b>Reference Type</b>	Journal articles and all journal ranking

In order to meet these criteria, we analyzed each article's title and abstract, and full text. At each stage, we had provided the reason for the inclusion and exclusion of papers for this review.

- ***Exclusion criteria***

The studies/papers that do not satisfy the mentioned above requirements and are not related to team creativity were not considered as primary studies for this review.

**Table 3.4**

*Exclusion criteria for the systematic review*

<b>Exclusion criteria for the systematic review</b>	
<b>Criterion Type</b>	<b>Exclusion criteria</b>
<b>Topic</b>	The studies are not related to Team/Group Creativity and innovation field, also not relevant to the research questions (what factors influence Team/Group Creativity <b>in Theory?</b> ) (e.g., the studies from medical science will be excluded)
<b>Language</b>	Not English
<b>Research base</b>	Editorial papers, Interview the authors, Review books
<b>Peer Reviewed</b>	The research which is not peer-reviewed will be excluded
<b>Reference Type</b>	Grey literature (Reports, White papers)

- **Queries and keywords search**

We used these keywords and queries to ensure that they cover all results of our research question, RQ1.1. Two of the academic journal databases (ProQuest and Ebsco) were used to run these queries (Full-text, Peer reviewed).

**Figure 3.10***Queries for searching papers*

<p><b>Queries</b></p> <p><b>PROQUEST</b></p> <p>((("team creativity" OR "group creativity") AND ("Measur*" OR "Antecedent" OR "Factor"))) AND (la.exact("ENG") AND PEER(yes))</p> <p><b>EBSCO</b></p> <p>((("team creativity" OR "group creativity") AND ("Measur*" OR "Antecedent" OR "Factor")))</p>
--

- **Data Extraction protocol**

To answer RQ1.1, we needed to extract the relevant information from the articles/studies. The information from each article was planned to be collected as the following:

The data characteristics were explored for each included article for further use as the quality analysis.

**Table 3.5***Data Extraction Protocol for Data Extraction level*

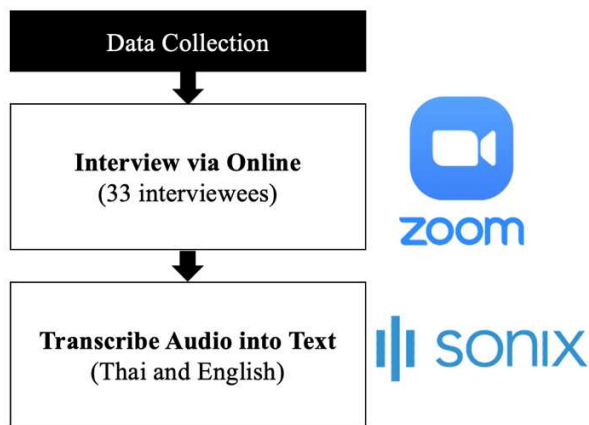
<b>Data Extraction Protocol for Data Extraction level</b>	
<b>Collecting Information</b>	<b>Purpose</b>
<b>Article</b>	Overview and primary analysis
<b>Year</b>	
<b>Journal name</b>	
<b>Summary of this Article?</b>	Summarize the articles
<b>What factors influence Team Creativity in Theory?</b>	Answering RQ1.1 and SLR Q1.1
<b>Their definitions</b>	Answering RQ1.1 and SLR Q1.1
<b>Key Questions</b>	Key Main Questions or Issues in the articles
<b>Key hypotheses</b>	Hypotheses in the articles
<b>(My)Observation</b>	Key observation in the articles

### 3.7.2.2 Data collection for RQ1.2

We conducted interviews through Zoom meetings and transcribed them using Sonix.Ai software. All interview data was recorded to ensure transparency. We gathered information from X interviews focusing on the 8 highest categories of the Team Creativity IMOT model.

**Figure 3.11**

*Data Collection for Qualitative Interview Part*



These interviews include 8 specific questions. Some examples of these questions:

- For this particular project, would you think that the **team composition** (personality, diversity, competencies, etc.) **contributed to generating these novel ideas?** If so, in which ways?
- For this particular project, would you think that the **team composition** (personality, diversity, competencies, etc.) contributed to generating **not so novel ideas?** If so, in which ways?

We asked the interviewees the above questions in 8 categories, such as

- Team composition
- Team structure/Team leadership

- Organizational/Contextual factors
- Team Creative Process
- Team climate/Cohesion
- Team learning
- Team longevity
- Time pressure

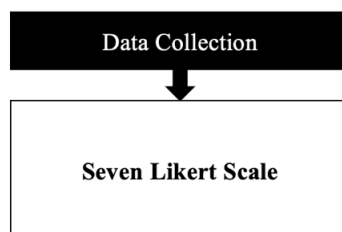
Additional questions as follows:

- Could you think of any other potential factors that may have **led to these novel ideas?**
- Could you think of any other potential factors that may have **led to not so novel ideas?**

Moreover, we asked the participants to rate 8 categories from 7-point Likert scale questionnaires to determine how much the participants believed each of the 8 categories influenced their team's creativity level.

**Figure 3.12**

*Data Collection for Quantitative Part*



The questionnaires are as follows:

**Figure 3.13**

*Seven-point Likert Scale*

Dimensions	To which extent do you think that the following dimensions contributed to your team creativity						
	To an Extremely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderate Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent
1. Team Composition	1	2	3	4	5	6	7
2. Team structure/Team leadership	1	2	3	4	5	6	7
3. Organizational/ Contextual factors	1	2	3	4	5	6	7
4. Team creative process	1	2	3	4	5	6	7
5. Team climate/ cohesion	1	2	3	4	5	6	7
6. Team learning	1	2	3	4	5	6	7
7. Team longevity	1	2	3	4	5	6	7
8. Time pressure	1	2	3	4	5	6	7
9. Others ...	1	2	3	4	5	6	7

Dimensions	To which extent do you think that the following dimensions contributed to your low team creativity						
	To an Extremely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderate Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent
1. Team Composition	1	2	3	4	5	6	7
2. Team structure/Team leadership	1	2	3	4	5	6	7
3. Organizational/ Contextual factors	1	2	3	4	5	6	7
4. Team creative process	1	2	3	4	5	6	7
5. Team climate/ cohesion	1	2	3	4	5	6	7
6. Team learning	1	2	3	4	5	6	7
7. Team longevity	1	2	3	4	5	6	7
8. Time pressure	1	2	3	4	5	6	7
9. Others ...	1	2	3	4	5	6	7

### 3.7.2.3 Data collection for RQ2

We conducted interviews via Zoom and transcribed them with Sonix.ai software. All interview data was recorded for transparency. We gathered information from X interviews that focused on the critical incidents part. Critical Incident

Technique (CIT) used as a data collection process: “a set of procedures for collecting direct observations of human behavior in such a way as to facilitate their potential usefulness in solving practical problems and developing broad psychological principles" (Flanagan, 1954, p. 327)” These CIT questions divided into two parts (Positive and Negative incidents) as follows:

### **Part 1 of interview questions**

#### **Positive incidents**

- Please think of a recent team project that you worked on that was successful. Please describe a specific time when your team demonstrated some high level of creativity by coming up with a very novel idea or solution (new products, services, processes, or problem solving).
  - Please describe this experience as much detail as you can remember.
  - Describe as precisely as possible what triggered and stimulated the creativity of your team?
  - How can you explain that the team was so creative for that project? What did the team do differently from other project that led to more creative output?

#### **Negative incidents**

- Please think of a recent team project that you worked on that was not so successful. Please describe a specific time when your team demonstrated some low level of creativity by coming up with not so novel idea or solution (new products, services, processes, or problem solving).
  - Please describe this experience as much detail as you can remember.



- Describe as precisely as possible what hindered the creativity of your team?
- How can you explain that the team was not creative for that project?  
What did the team do differently from other project that led to less creative output?

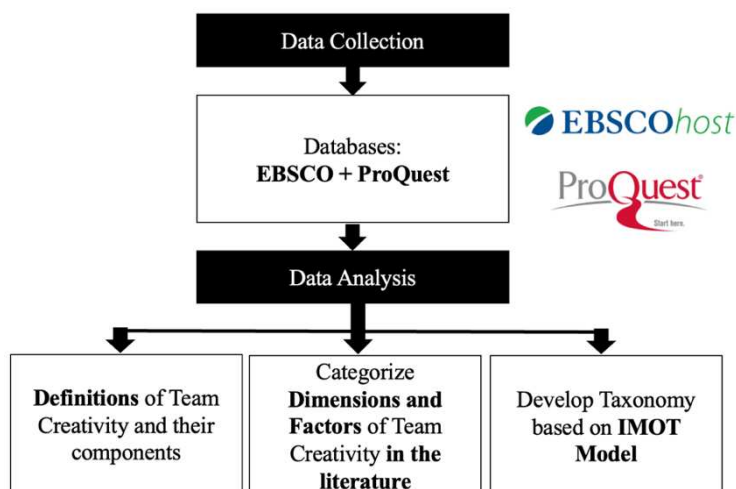
### 3.7.3 Data analysis

#### 3.7.3.1 Data analysis for RQ1.1

Through a Systematic Literature Review following the PRISMA process, X relevant key references were identified and analyzed. From these references, a number of team creativity factors were gathered and organized according to the Input-Mediator-Output (IMO) team effectiveness framework. A "Team Creativity IMOT model (TCIM)" (Input-Mediator-Output-Time) taxonomy was also created to enhance the comprehension of the current known criteria that contribute to team creativity.

**Figure 3.14**

*Data Collection and Analysis for RQ1.1*



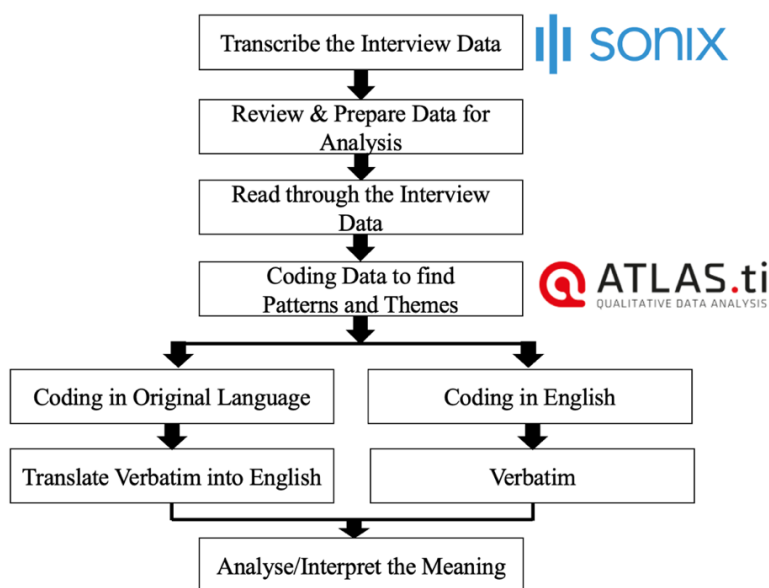
### 3.7.3.2 Data analysis for RQ1.2

First, the audio from the interviews was transcribed into text using Sonix.ai. Then, we reviewed and prepared the interview data for further analysis. A mix of deductive and inductive approaches was used when coding the interview data (using ATLAS.ti software). The deductive method involved following the 8 highest categories outlined in the Team Creativity IMOT model (TCIM) and the interview questions. We first coded the data according to this guide. Then, the inductive method was applied to explore the data further and add more codes based on the text.

During the coding process, the researcher, who is bilingual in Thai and English, coded the transcripts in their original Thai as well as in English language. To ensure clarity and coherence with the dissertation language (English), the Thai codes and verbatim were translated into English for further analysis and interpretation of meaning.

**Figure 3.15**

*The process of transcribing, coding, and analyzing the interview data (Qualitative part)*



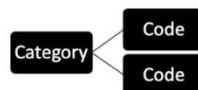
As previously mentioned, the coding process began with both deductive and inductive methods. All qualitative data sets were analyzed separately in ATLAS.ti software. The interview data involved categories and thematic analysis of interview responses. Data was coded independently as first cycle coding using initial, descriptive, and In VIVO coding. The data continued second cycle coding using cumulative coding methods. All Codes were cumulated as patterns to develop a content analysis, so it analyzed data qualitatively and quantified the data at the same time (Gbrich, 2007). Additionally, the thematic data analysis was used interchangeably. The main two themes identified as “Factors that enhance team creativity” and “Factors that hinder team creativity.” When analyzing the key themes, it considered the predominant group as a whole rather than individuals within them (Krueger, 1994).

**Figure 3.16**

*Coding process*

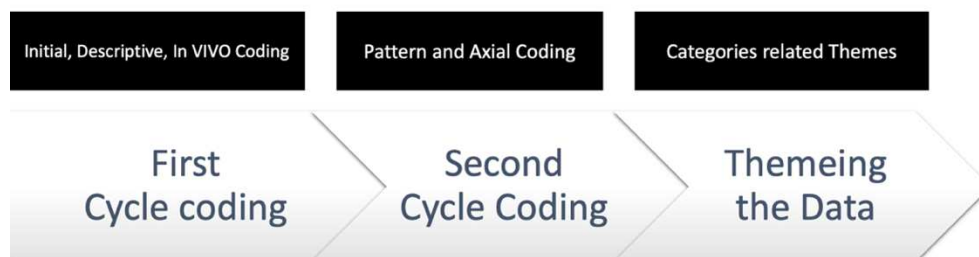
### Hybrid (Deductive + Inductive) Coding (RQ1.2)

1. **Deductive method** (Creating Codebook of 8 highest categories from Team Creativity IMOT model) Coding followed 8 categories
2. **Coding using Inductive method**



#### Themes

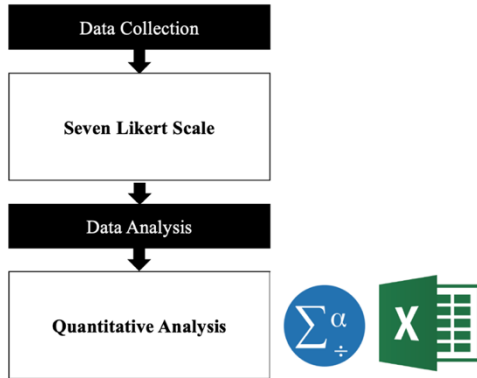
1. Factors that enhance Team Creativity
2. Factors that hinder Team Creativity



For the quantitative part, basic statistics were applied to assess the 7-Likert Scale. Excel and SPSS were used for analyzing data (Figure 3.17).

Figure 3.17

*Data Analysis for Quantitative Part*

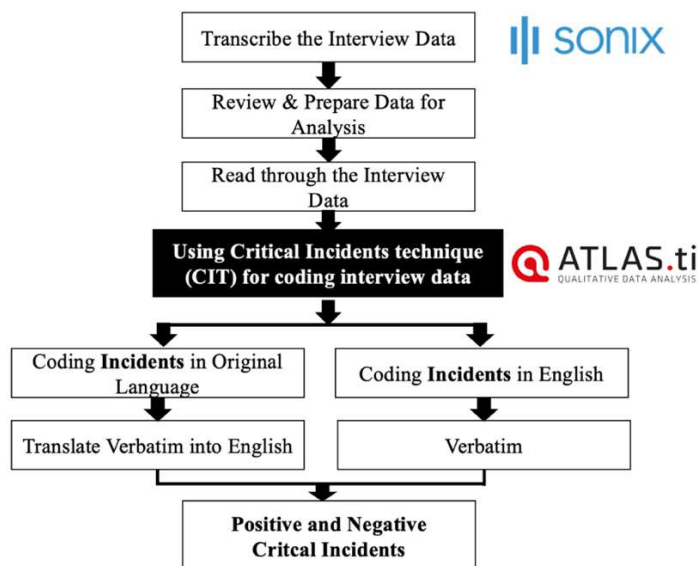


### 3.7.3.3 Data analysis for RQ2

Firstly, the interview data was transcribed into text by using Sonix.ai software. The Critical Incident Technique (CIT) was used to collect and analyze the interview data. We analyzed the interview data by reading and coding the critical incidents. The critical incidents were then categorized as either positive or negative based on the participant's perceptions (Figure 3.18).

Figure 3.18

*The process of transcribing, coding, and analyzing the interview data using the CIT approach*



### **3.8 Rationale for using Critical Incident Technique (CIT)**

The Critical Incident Technique (CIT) is a method used in qualitative research to gather information about a specific event or situation (Flanagan, 1954). It is particularly useful in areas where there is little existing information or where traditional survey methods may not be sufficient to capture the complexities of a situation. The CIT technique involves asking participants to provide details or tell the story of incidents that are particularly significant to them and then analyzing these incidents to identify common themes and patterns.

One of the key advantages of the CIT is that it allows researchers to gain a deep understanding of the experiences and perspectives of participants. By focusing on specific incidents, researchers can explore the emotions, thoughts, and behaviors of individuals in great detail, which can provide valuable insights into their motivations and decision-making processes. Additionally, because the CIT technique is based on open-ended questions, participants have the freedom to express themselves in their own words, which can lead to rich and nuanced data. In the business field, this technique can be used to identify critical incidents that have led to success or failure, and to develop strategies for improving performance. CIT also has its limitation as it is time-consuming. This CIT method relies on self-report data which can be the risk of bias. CIT is not suitable for all research questions, and researchers should carefully consider whether it is the most appropriate method for their particular study (Butterfield et al., 2005).

Therefore, in this research, we used the CIT method as a data collection process for answering research question two (RQ2) on How is team creativity process affected by Critical incidents? This was necessary as the General framework resulting from RQ1

did not provide a detailed understanding of the team's creative process within its specific context. The CIT interview method was rarely employed in team creativity research. However, for this research, the CIT approach was chosen to examine the team creativity process, which varies based on the specific context and situation.

### **3.9 Credibility and Trustworthiness in Qualitative Research**

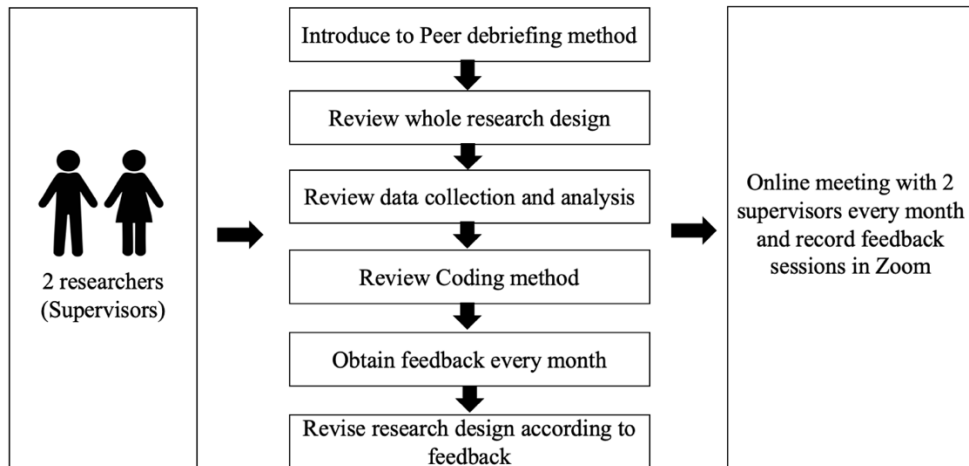
To ensure the integrity of the research findings, it is crucial to establish trustworthiness in the data collected. There are several means through which this can be achieved. Each of these factors is considered and added perspectives from others who have written on trustworthiness in qualitative research (Stahl & King, 2020).

Firstly, credibility can be established by providing a detailed description of the research process and methodology. Credibility asks, "How congruent are the findings with reality?". In order to establish credibility, one effective approach is triangulation. There are several forms of triangulation, such as methodological triangulation (using multiple data collection or analysis methods), data triangulation (using multiple types of data), and investigator triangulation (using multiple researchers to analyze findings). In this research, a methodological triangulation approach is applied through Embedded or Nested Mixed methods research. This involves combining both qualitative and quantitative methods (Mainly qualitative). This approach can lead to three outcomes: (1) the results may converge and lead to the same conclusions, which increases the validity of the findings; (2) the results may relate to different objects or phenomena but can complement each other and be used to supplement individual results; and (3) the results may be divergent or contradictory, which can lead to new and improved explanations for the phenomenon being investigated. These different outcomes can

highlight various aspects of the phenomenon under this research (Tashakkori & Creswell, 2007). In addition, this research used a data triangulation method, which involved collecting information from various sources. We gathered primary interview data from team leaders and asked them to rate the 8 dimensions using a 7-point Likert Scale. Secondary data was obtained through a systematic literature review.

Another factor for trustworthiness, as suggested by Lincoln and Guba (1985), is transferability. Transferability can be ensured by providing clear and concise explanations of the research context. This involves describing the participants, setting, and any other relevant contextual factors that may impact the research findings. This research also expressed a clear research design and a clear description of the data collection and analysis procedures to ensure that others can replicate this research in different contexts (Stahl & King, 2020).

For dependability in research, it is important to use peer debriefing in this research for consistency (Lincoln & Guba, 1985). This research documented any changes made and ensured that data collection and analysis procedures were reliable and consistent. It also ensured the data collection and data analysis processes with agreements on another two researchers. In order to ensure the credibility and trustworthiness of this research, we intended to implement the peer debriefing protocol (Figure 3.19) as the following:

**Figure 3.19***Peer debriefing protocol for this research*

Getting feedback through peer review or debriefing can greatly assist us in improving this work.

Finally, we established confirmability by engaging in reflexivity and acknowledging her own biases and perspectives that may influence the research findings. This involved critically reflecting on the research process and acknowledging the potential impact of personal biases on the research findings. It is also important to ensure that the research findings were supported by the data collected and analyzed.

### **3.10 The Credibility of CIT Method**

To maintain the credibility of CIT methods in this research, we conducted peer debriefing with two researchers. Many scholars recommend peer debriefing as a method to improve the creditability of qualitative research (e.g., Creswell & Miller, 2000, Lincoln & Guba, 1985, Merriam, 1998).

It is a common practice to share the preliminary categories resulting from data analysis with two or more experts in the field to ensure accuracy. This allows the



experts to review the categories and provide feedback on their usefulness, any surprises, and potential omissions based on their experience. This purpose is to increase the credibility of the categories, should the experts agree with them (Butterfield, 2005). According to Flanagan, if we observe two or three significant behaviors from a collection of 50-100 critical incidents, we can assume that the domain is adequately covered. However, this is just a general rule and should be adjusted for each study. So, this research will implement the saturating rule by **X** number of critical incidents. Finally, it is important to record interviews through audio or video to ensure that the participants' stories are accurately captured in this research.

### **3.11 Ethics**

Bryman and Bell (2007) proposed important points relevant to ethical considerations in the dissertation. Research participants should be volunteers and should not be harmed in anyway. We obtained the full consent of the research participants. Thus, we informed the research participations about the consent for data collection such as observation, interview, and survey.

In addition, we protected the privacy of the research participants. As all research participation were anonymous, we confirmed that the research data and information were confidential.

### **3.12 Chapter Summary**

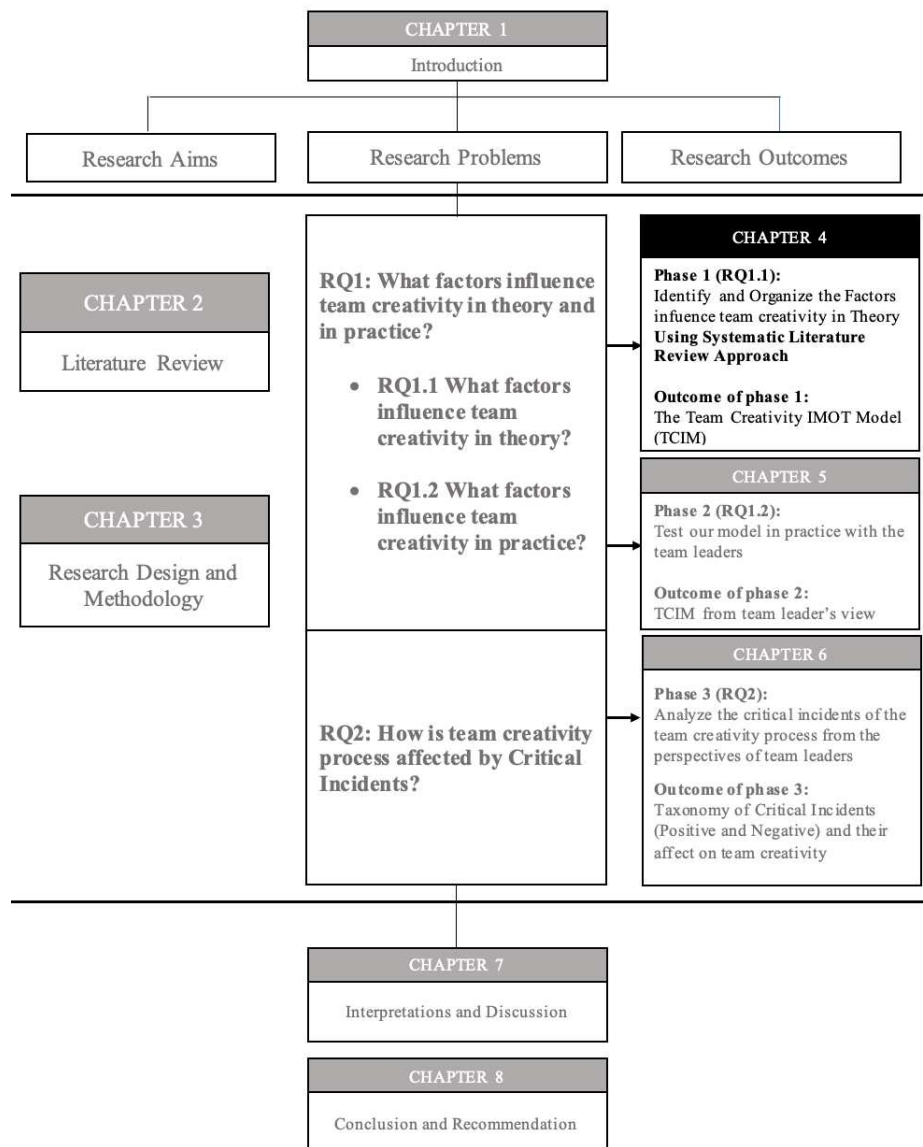
This chapter presented the research design and methodology. Additionally, the concepts of credibility and trustworthiness in this research were discussed and then followed by ethics.

## CHAPTER 4

### WHAT FACTORS INFLUENCE TEAM CREATIVITY IN THEORY

#### 4.1 Introduction

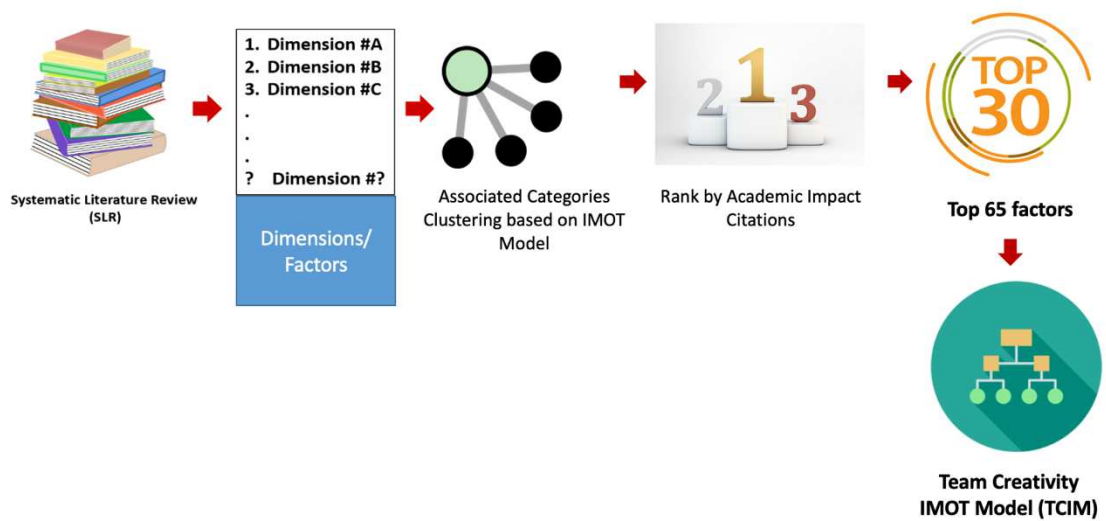
This chapter presents the systematic literature review (SLR) results for this research, followed by organizing factors that influence team creativity into a taxonomy. In addition, the dimensions and factors that influence team creativity are discussed to answer our research question RQ1.1 What factors influence team creativity in Theory?



To answer RQ1.1, we followed a systematic literature review process. We analyzed 193 papers published from 1963 to MAY 2022 and identified all the dimensions and factors related to our study. We then categorized and clustered these dimensions and factors based on the IMOT (Input-Mediator-Output-Time) Model. To further refine our analysis, we ranked all the factors using Academic impact citation scores from Dimensions.AI and selected the top 30 factors for each input, mediator, and time (Figure 4.1).

**Figure 4.1**

*The process to answer RQ1.1: What factors influence team creativity **in Theory**?*



## 4.2 Systematic literature review results

The comprehensive search begins with searching the articles/studies from two databases, including ProQuest and EBSCOhost, from all years (1963 – May 2022). Additionally, we manually added some papers in recent years to make sure that they cover all the articles in Team Creativity. In addition, many scholars do not differentiate what is Team or Group creativity.

Therefore, the summary table shows this research search queries.

**Table 4.1**

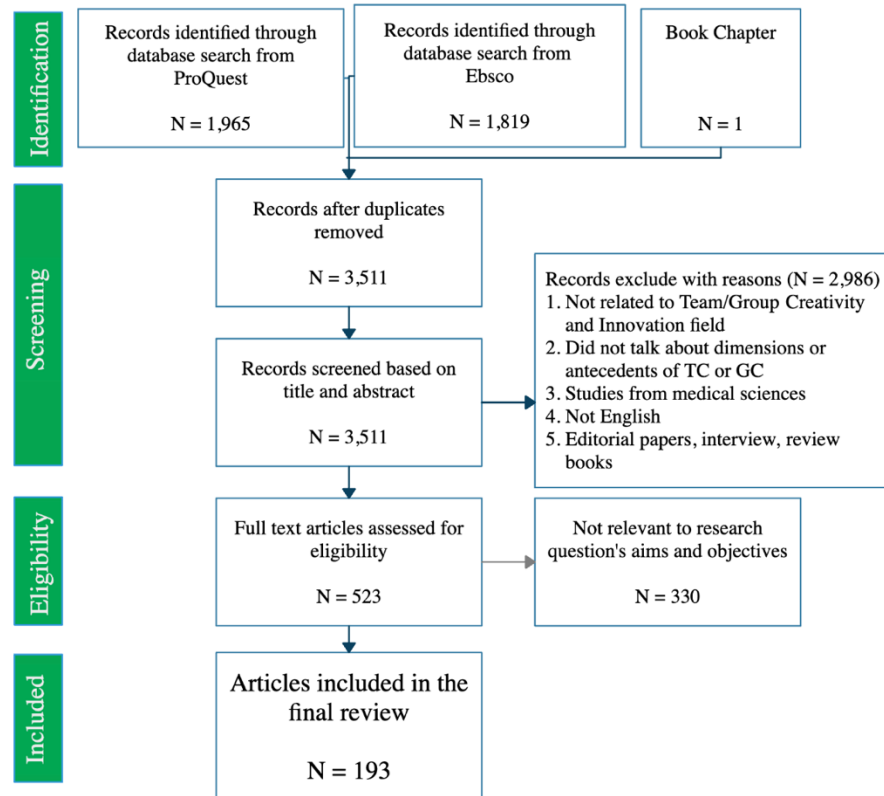
*The summary table of keywords and queries*

Literature Search Queries			
Criteria	ProQuest	Ebsco	ProQuest + Ebsco
Keyword Queries	((("team creativity" OR "group creativity") AND ("Measur*" OR "Antecedent" OR "Factor")) AND (la.exact("ENG") AND PEER(yes)))	((("team creativity" OR "group creativity") AND ("Measur*" OR "Antecedent" OR "Factor"))	1965 + 1820 = 3785  After Removed duplicate, remain 3511 Articles
Year	All year - 2022	All year - 2022	
Restriction	Peer Review	Peer Review	
Source type	Academic Journals	Academic Journals	
Language	English	English	

193 Articles were critically analyzed with respect to RQ1.1: What factors influence team creativity in **Theory**? All the dimensions and factors have been mentioned in 193 articles. Specifically, the dimensions and factors were presented in this chapter 4.

Figure 4.2

*PRISMA Study selection process for team creativity concept and dimensions*



### 4.3 Categorizing the Team Creativity Dimensions and Factors

Out of the 193 articles selected, we identified 274 factors and clustered them by using the Mathieu et al. (2008) framework to develop a taxonomy (Figure 2.7). This classification was conducted by 3 researchers, who agreed on the following classification. Some factors could fit in different sections of the classification since some minor overlaps exist in this taxonomy. 118 factors were identified for the Inputs dimension, 151 for Mediators, and 5 related to Time. Figure 4.3 is the overview of the high levels of the taxonomy.

Figure 4.3

*The overview of the high levels of Team Creativity Factors taxonomy*

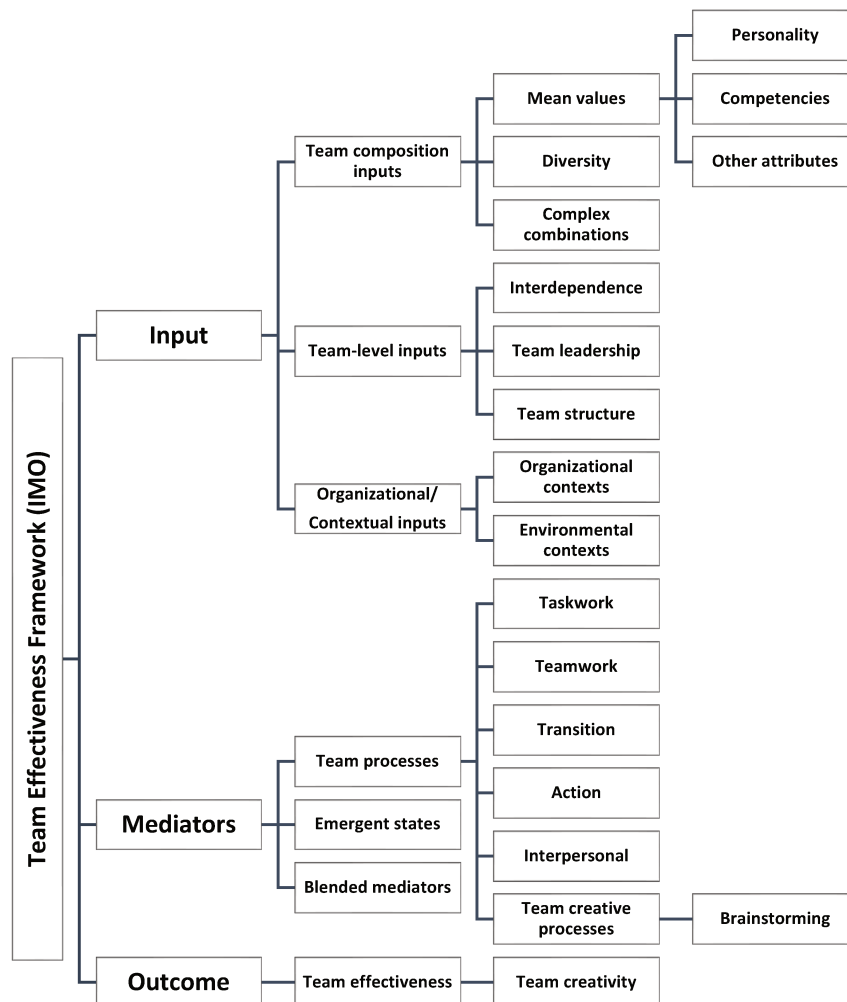


Table 4.2, 4.3, 4.4, 4.5 present the taxonomy of Team Creativity developed at a summarized level. Once again, due to space limitation, we could not present the full taxonomy with all its levels of depth. Only 3 levels were used.

Full taxonomy available at

[https://drive.google.com/file/d/10JYRzFIrPImdSd0u3vzSMREofPX66\\_gv/view?usp=drive\\_link](https://drive.google.com/file/d/10JYRzFIrPImdSd0u3vzSMREofPX66_gv/view?usp=drive_link)

The definition of each factor can be found in Appendix B.

**Table 4.2**

*Team Creativity Factors taxonomy: INPUTS*

<b>Dimension</b>	<b>Sub-Dimensions</b>	<b>Factors</b>
<b>INPUTS</b>		
Team composition inputs	Combination of individuals such as Personality, Competencies and Creativity-relevant personality factors	Neuroticism
		Extraversion
		Openness to experience
Agreeableness		
Conscientiousness		
Individual Factor		
Psychological Capital		
Creative self-efficacy		
Individual knowledge		
Individual skills		
Individual abilities		
Empathy		
Individual creativity		
Creative styles		
Creative Personality		
Cognitive style and personality		
Innovative behavior		
Proactive personality		
Problem-solving style		
Systematic thinking style		
	Individual Goal orientation and other related to self-orientation	Individual Goal setting/strategy to achieve team goals
		Individual goal orientation
		Growth need strength
		Self-esteem and self-monitoring/ (creative, role breadth) self-efficacy
		Learning orientation
		Need for cognition
		Regulatory focus: prevention
	Regulatory focus: promotion	
	Diversity in terms of Demographics (Race/Ethnicity and Education), Attitudes and Values	Educational diversity
		Demographic diversity
		Gender diversity
		Nationality diversity
		Top managers' demographic characteristics (e.g. ownership, racial and gender diversity)
		Team Power Distance Value
		Team cultural diversity
	Individualistic Self-Construal Value Orientation (TISCO)	

		National culture (power distance, masculinity, uncertainty, avoidance, individualism, social face)/ empowerment	
		Background Diversity	
		Positive and negative group affective tones	
		Positive mood	
		Diversity of perspectives	
		Team diversity beliefs	
		Work value diversity	
		Other diversity	Cognitive diversity
		Functional diversity	
		Heterogeneity of experience	
		Informational diversity	
		Job Relevant Diversity	
		Task knowledge diversity	
	Number of functional areas		
	Complex combinations such as Position and status issues	Identity comprehension	
	Team status inequality		
	Status conflict		
	Informational faultline strength		
	Team-Level Inputs	Team leadership	Transformational leadership
			Transactional/Transformational leadership
		Leadership within/outside the team	
		Participative leadership/ leader behaviors/ unconventional leadership	
		Influence-based leadership	
		Shared leadership	
		Self-Serving Leadership	
		Structuring leadership	
		Democratic/Autocratic leadership	
		Directive leadership	
		Empowering leadership	
		Leader effectiveness	
		Ethical leadership	
		Entrepreneurial leadership	
		Leader creativity	
		Leader empowerment	
		Project manager's operating style	
		Leader intuitive style	
		Leader systematic style	
		Supervisor support for creativity	
		Leader humility	
	Structure of the team	Formalization/ structural integration	
		Complexity/ regulative, normative and cultural-cognitive institutional forces/ harmonization/ decentralization/ reorganization	



		Bureaucratic practices	
		Team Size	
	Interdependence	Task interdependence	
		Goal interdependence	
	Virtuality	Highly involving work systems	
		Team virtually	
	Organizational/Contextual Inputs	Organizational Contexts related to Human Resource System, Openness climate, Resources and Spaces	Environmental perceptions and discretionary slack
			Firm's reward structure for project teams
			Perceived learning culture
			Individual skill development
Rewards			
Training condition			
Organizational encouragement for innovation			
Encourage to take risk			
Technical and technological support			
Supervisory expectations for creativity/ supervisory developmental feedback and non-close monitoring			
Developmental feedback			
Budget			
Slack resources			
Resource availability			
Energy zones			
Project environment			
Physical spaces			
Environmental Context such as Cultural influence on teams (Team climate)		Climate for excellence	
		Climate for inclusion	
		Collaborative climate	
		Cultural intelligence	
		Culture	
		Idea-support	
		Customer input/ customer affect-based trust	
		Customers' influence	
		Environmental dynamism	
		Geographic distribution of R&D activity	
		Environmental uncertainty	
		Turbulence	
		Dynamism	
	Urbanization		
	Community wealth		

		Population growth
		Unemployment rate
		Industry sector

**Table 4.3**

*Team Creativity Criteria taxonomy: PROCESSES*

<b>Dimension</b>	<b>Sub-Dimensions</b>	<b>Factors</b>
<b>MEDIATORS</b>		
<b>PROCESSES</b>		
Team-level mediators: processes	Taskwork	Task Characteristics
		Task intellectiveness
		Task type
		Task Orientation
		Task complexity
		Team-Task-Required Creativity (TTRC)
		Prior experience in the task: direct task experience
		Prior experience in the task: indirect task experience
	Transition processes include Mission analysis formulation and planning, and Goal specification	Team Organization
		Presence of creative coworkers
		Organization strategy/ innovation strategy
	Action processes include Monitoring Progress toward goals and Monitoring Systems, Coordinating team members, Team monitoring and backup behavior	Project monitoring by senior management
		Planning and organizing
		Performance management
		Organizational support and control
		Team Time Management (TTM)
		Backup and support
		Collaborative culture
		Coworker support
		Providing feedback
Team participation		
Interpersonal processes such as Conflict management, Motivation and confidence building	Conflict management	
	Competition	
	Affective presence	

		Leader positive affective presence
		Leader negative affective presence
		Intrinsic motivation
		Extrinsic motivation
		Team self-concordance
		Fear of evaluation
	Interpersonal processes related to internal interactions	Communication
		Collaboration
		Team interaction
		Team formation
		Sub-group Formation of Communication
		Maturity of relationships
		Team membership change
		Leader-Member Exchange (LMX)
		Information exchange
		Inside networks
		Information sharing
		Quality of relationships
		Work-related communication density
		Interpersonal processes related to external interactions
	Social media usage	
	Professional networks	
	External Communication	
	Bridging different realities	
	Outside networks	
	Team Creative Processes	Representational gap in Problem Construction
		Divergent thinking ability
		Convergent thinking
		Idea generation
		Idea evaluation and selection
Creative problem solving processes		
Team Exploitation and Exploration		
Creative process engagement		
Preparation		
Perspective taking		
Involving others		
Synthesis of the team's ideas		

Table 4.4

*Team Creativity Criteria taxonomy: EMERGENT STATES*

Dimension	Sub-Dimensions	Factors
<b>MEDIATORS</b>		
Team-level mediators: Emergent States	Team confidence	Team creative confidence
		Collective efficacy
		Team creative efficacy
		Team efficacy
	Team empowerment	Supervisory support/ supervisory empowerment behaviors/ supervisory benevolence
		Leadership support for innovation
		Creative autonomy
	Team climate such as Creative climate, Safety climate and Justice climate	Innovation climate/ reflexivity climate/ climate for psychological safety and personal initiative
		Reflective climate
		Supportive climate for creativity
		Quality and support for innovation
		Team climate for Innovation
		Creative Climate Obstacles
		Creative climate Stimulants
		Creativity expectations by coworkers
		Variables in Amabile's KEY model (organizational and supervisory encouragement, work group support, resources)
		Variables in Ekvall's model (challenge, freedom, idea support, trust/openness...)
		Variables in West's team climate for innovation model (vision, participative safety, task orientation, support for innovation)
		Shared language and codes
		Shared narratives
High care		
Empathy		
Safety		
Risk-Taking		
Risk-Taking Norms		
Team conflict		

		Minority dissent
		Informal Hierarchy Strength
		Relationship Conflict
		Intra-group Conflict
		Majority/minority dynamics
		Reaction to conflict
		Averts conflict
		Task Conflict
		Service innovation
		Constructive controversy
		Participation in decision-making
		Personal integrity alignment with creative process
		Evaluation/ justice
		Cohesion: Interpersonal attraction, Task commitment, Group Pride
	Positive and negative group affective tones	
	Team prosocial motivation	
	Social cohesion	
	Cooperative group norms	
	Focus on the task at hand	
	Team cohesiveness	
	Conformity value	
	Team commitment	
	Team identification	
	Team promotion focus	
	Team citizenship	
	Superordinate identity	
	Trust	
		Participative Safety
		Interpersonal trust
	Collective Cognition	Shared Mental Models
		Group emotional tone
		Team emotional intelligence
		Team reflexivity
		Boundary crossing
		Improvisation
	Sharing, co-construction, and constructive conflict	

		Team-building dynamics
		Team Proactivity
		Clarity of objectives
		Commitment to objectives
		Vision
		Team goal orientation
		Challenge and involvement
		Employee information elaboration
Blended Mediators	Team learning	Knowledge acquisition
		Knowledge creation
		Knowledge integration capability
		Knowledge search
		Knowledge spillover (transfer)
		Knowledge Sharing
		Diffusion process
		Knowledge Hiding
		Expertise Identification
		Absorptive capacity
		Training Programmes
		Team-based learning tools
		Learning community
		Socialization process
		Team knowledge utilization
	Cognitive skills and abilities	
	Team knowledge sourcing	
Knowledge Stock		
	Behavioral integration: Quantity and Quality of information exchange	Resource diversity and quality/ resource exchange
	Transactive Memory	Transactive memory system

**Table 4.5**

*Team Creativity Criteria taxonomy: TIME*

Dimension	Sub-Dimensions	Factors
<b>TIME</b>		
Time	Developmental processes	Team Longevity
		Team tenure
	Episodic cycles	Phase of project team life cycle
	Task	Time pressure
Time, need for closure		

#### **4.4 Taxonomy of team creativity dimensions**

##### **From academic impact citation (Dimension.AI)**

There are 20 categories and 65 dimensions, which was reduced from 274 by clustering and ranking the academic impact citations (from dimension.AI) of all dimensions. This way it can see the scores for each cited keyword (dimension). We utilized citation ranking to organize the top factors. The top 30 highest scores were selected for each input, mediator, and time. Thus, Figure 4.4, 4.5, 4.6 show the top category for each Input, Mediator and Time.

Figure 4.4

Team Creativity Criteria taxonomy (INPUTS)

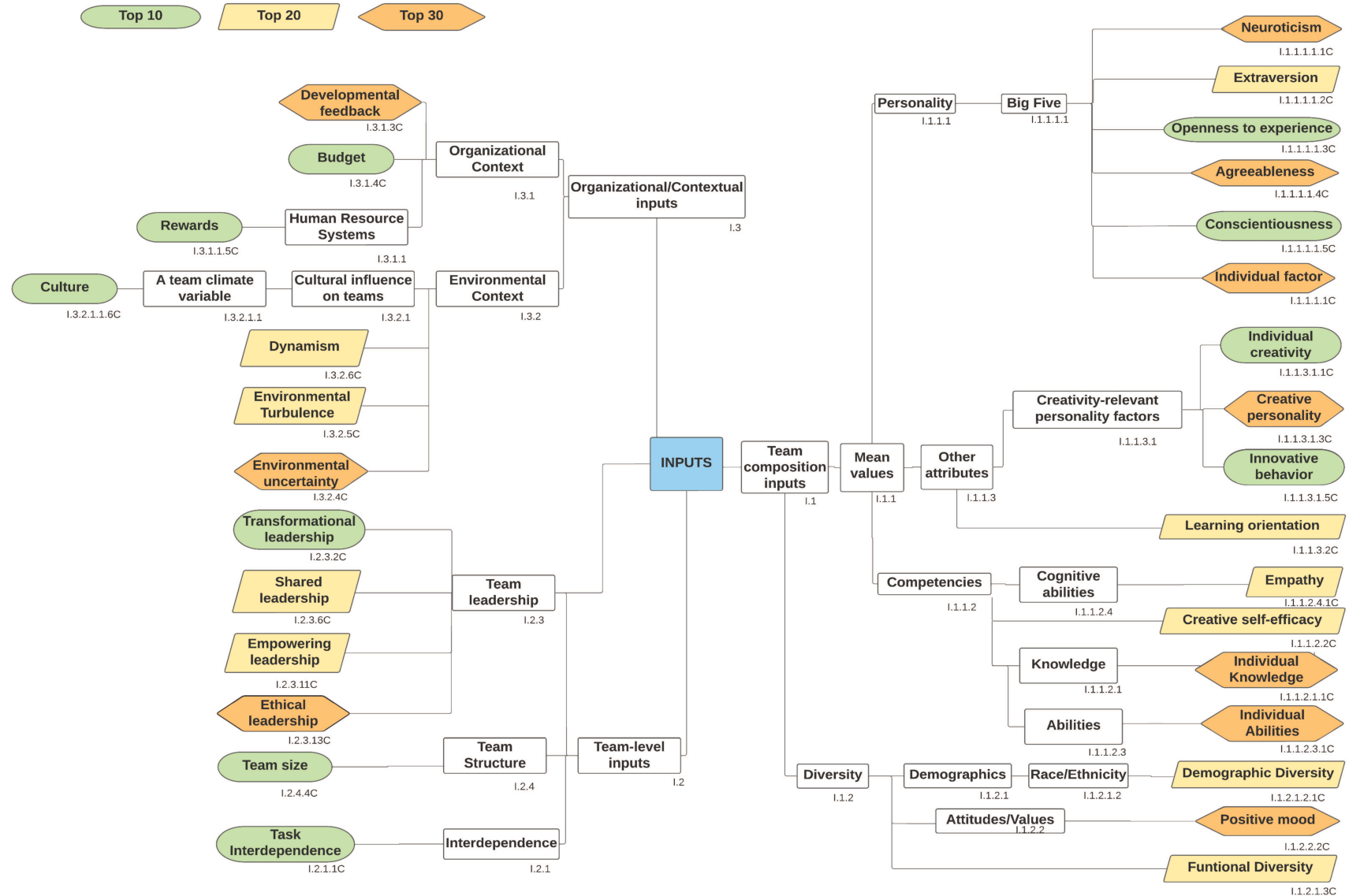




Figure 4.5

Team Creativity Criteria taxonomy (MEDIATORS)

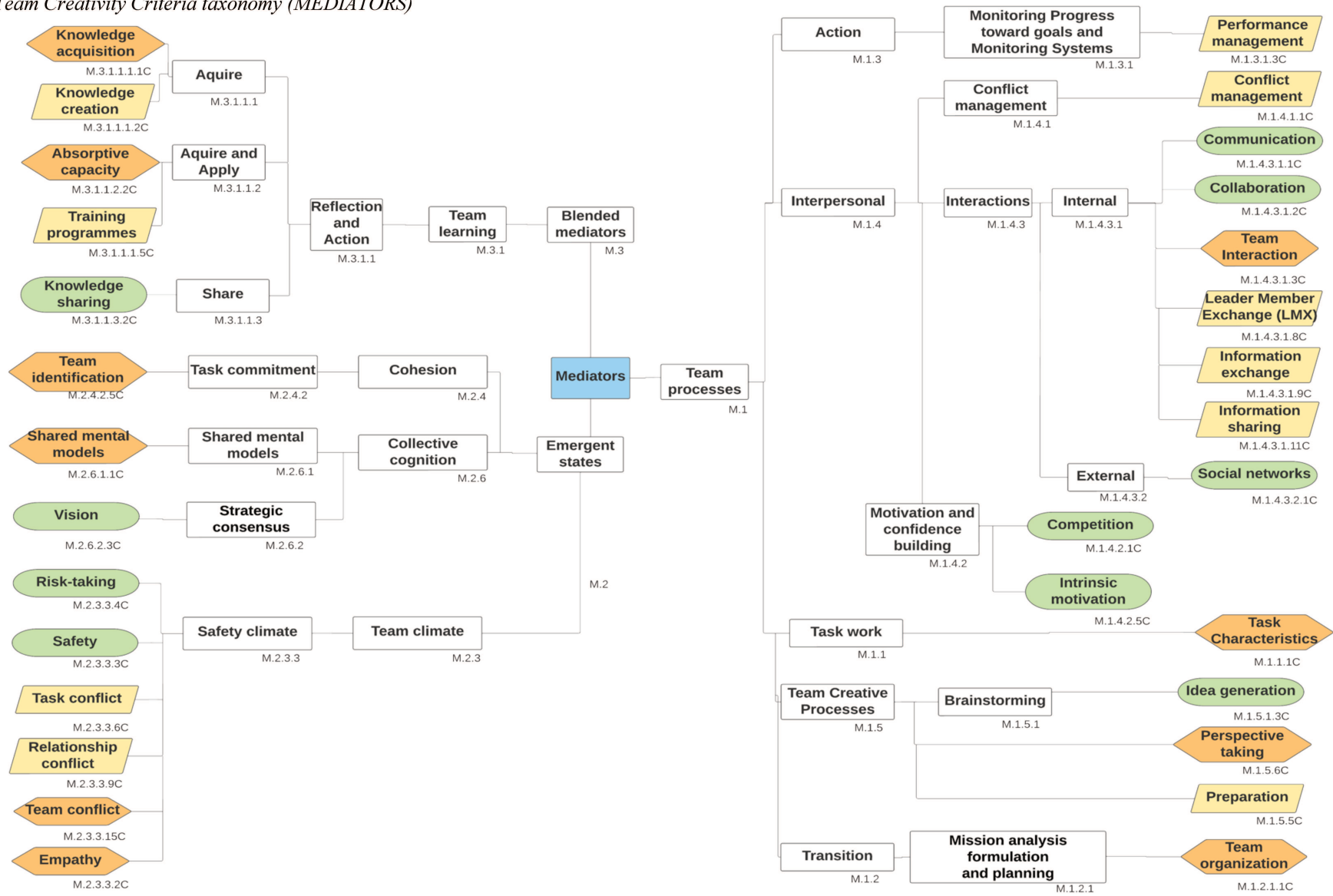
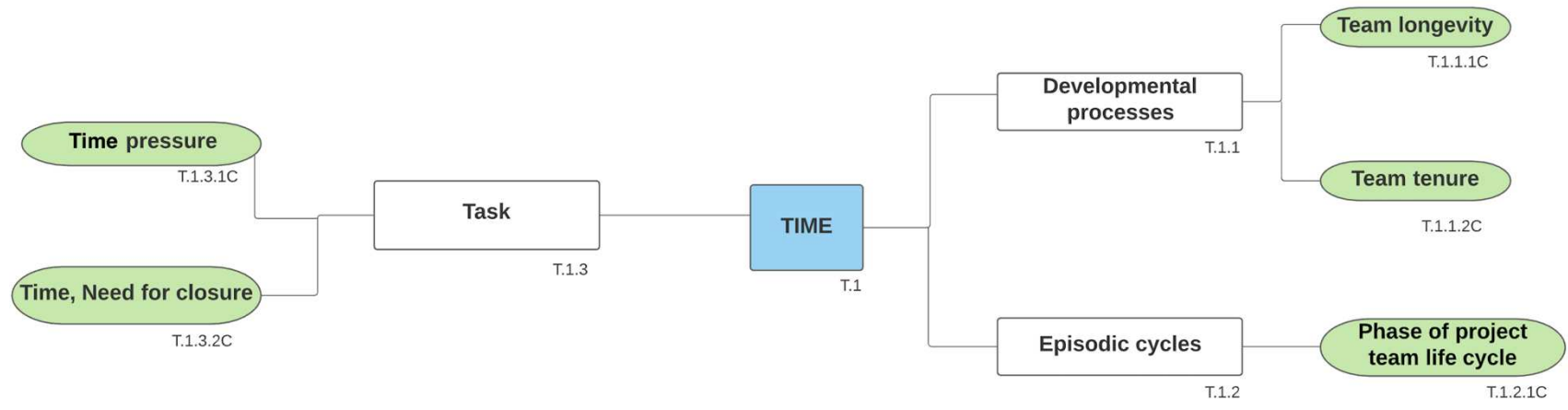


Figure 4.6

Team Creativity Criteria taxonomy (TIME)



In the following section, we describe in more detail the top-selected factors.

## **4.5 The descriptions of top factors**

### **4.5.1 INPUTS**

In IMOI (Input-Mediator-Output-Input) model, IM phase refers to the "Forming Stage" which is the early stages of team development. Followed by MO phase that refers to the "Functional Stage", those examining issues that we see as the team develops more experience working together. And OI phase refers to the "Finishing Stage" where the team completes one episode in development cycle and begins a new cycle (Ilgen et al., 2005). The inputs can be classified in three levels: individual input, team-level input, and organizational input. Firstly, we present the top ten input factors which include:

1. Team composition inputs such as Big Five personality (Openness to experience and Conscientiousness), Creativity-relevant personality factors (Individual creativity, Cognitive styles and personality, and Innovative behavior), Diversity (Demographic diversity and Functional diversity)
2. Team-level inputs such as Team leadership (Transformational leadership), Team structure (Formalization/Structural integration and Team size), Interdependence (Task interdependence)
3. Organizational and Contextual inputs such as Cultural influence on teams, Budget, and Rewards.

Then, we describe some factors that are also important, as listed in the top 30 factors:

4. Three types of diversity include Demographic, Functional, and Cognitive Diversity

#### **4.5.1.1 Team composition inputs (I.1)**

"Team composition research focuses on the attributes of team members and the impact of the combination of such attributes on processes, emergent states, and ultimately outcomes" (Mathieu, 2008, p.433). There are two main factors that stand out, which are Mean values (I.1.1) and Diversity (I.1.2)

##### **4.5.1.1.1 Mean values (I.1.1)**

The sum value of a characteristic is presumed to affect a team, regardless of how that characteristic is distributed among members. In the taxonomy, mean values (I.1.1) include

Personality (I.1.1.1)

- Big Five personality (I.1.1.1.1)
  - Openness to experience (I.1.1.1.1.3C)

According to Big Five personality model (McCrae & Costa, 1987), "Openness to experience is considered as the most outstanding to creativity" (Oldham & Cummings, 1996; Schilpzand, Herold & Shalley, 2011). Openness to experience was important for creative outcomes (Schilpzand, 2011). Zhang (2019) has examined the effect of heterogeneity of openness to experience (HOE) on two creative subprocesses – 1. Idea generation, 2. Idea development. He found that HOE was negatively related with idea generation but positively related with idea development. However, a team which composed of different of individual personal characteristics (e.g., personalities) tend to have a significant impact on team creativity (Baer, 2008). For example, idea generation needs creative thinking by team members which can be promoted by openness to experience, thus, "the stronger the team's overall openness to experience is, the more ideas are generated" (Zhang, 2019, p.68). However, idea development

depends on team members to find, share, and transform knowledge to facilitate initial ideas to evolve into applicable solutions. This concept shows that HOE also has a positive effect on knowledge sharing (Schilpzand, 2011). As seen in the work of Schilpzand (2011), knowledge sharing (KS) is partially mediated the relationship between HOE and idea generation while KS completely mediated the relationship between HOE and idea development. This is because in idea generation phase, team members need to propose many ideas in a shorter period of time. Thus, “the greater KS is, the more homogeneous knowledge among team members will be, though a homogeneous knowledge structure hinders creative idea generation” (Rodan & Galunic, 2004). On the other hand, idea development phase, individuals with high levels of openness to experience will promote knowledge flow to individuals with lower levels of openness to experience, individuals with complementary personality types can work together to boost knowledge sharing in teams, thus, helping fellow to find and generate more support ideas to further develop initial ideas (Zhang, 2019).

To conclude, the results shown that all team members do not need similar levels of openness to experience; rather what is needed is a range of openness to experience in a team for them to solve unfamiliar problems allowing for accessing to new perspectives which lead to team creativity. The research also suggests that at least one team member needs to have a moderate score on openness to experience to be able to generate ideas. In addition, team also need one member low on openness to experience to help team criticize and evaluate the ideas and converge their best ideas to further use (Scilpzand, 2011).

- Conscientiousness (I.1.1.1.5C)

In the study of Baer (2008), he suggested that team composed of individuals with personality characteristics lead to team creativity (high extraversion, high openness to experience, low conscientiousness, high neuroticism, low agreeableness) would happen when team experienced high levels of "Team Creative Confidence" which is "a shared understanding that the team is more creative than each team member individually" (Baer, 2008). Burch (2019) showed how important of personality and creative processes are in development of creative products by a team. They pointed out specific personality attributes that predict team creativity such as Big Five Personality. Five-factor individual personality which related to Amabile's (1996) componential theory of creativity, may be more comfortable in their abilities to be creative when they have high scores on creative personality.

- Other attributes (I.1.1.3)

Besides Big Five personality, there is some relevant factors that should be considered in Team composition inputs such as

- Creativity-relevant personality factors (I.1.1.3.1) include Individual creativity, Cognitive styles and personality, and Innovative behavior
  - Individual creativity (I.1.1.3.1.1C)

There are many definitions which are proposed for individual creativity. Many scholars have studied about creativity research in an individual level (such as Taggar, 2002; Pirola-Merlo A. and Mann L., 2004; Cirella, S., Radaelli, G., & B. Shani, A., 2014; Gong, Y., Kim, T.-Y., Lee, D.-R., & Zhu, J., 2013; Jain, R., Jain, C., & Jain, P., 2015; Sheng, W., 2015) As seen in Amabile (1983), "Individual creativity refers to a

single person's ability to create novel and useful products" (Amabile, 1983). However, "Individual creativity also refers to how creative individual team members perform their roles and tasks (Drazin et al., 1999)." Individual creativity composed of three components of Amabile's (1988) componential model including individual differences in levels of domain relevant skills (expertise), creativity relevant processes (creativity thinking), and intrinsic task motivation. These three components refer to as "intra-individual factors" (Pirola-Merlo & Mann, 2004), which is linked to contextual factors. Additionally, this componential model explains the characteristics of work environment in an organization that impact individual creativity such as organizational motivation, resources, and management practices.

Besides componential model/theory, there is Ford's (1996) theory of creative individual action that also suggests the relation of work environment with intra-individual factors that impact individual creativity. Ford (1996) proposed three components which are overlap to Amabile's (1988) componential model. These components are sense making, motivation, and knowledge and ability. This model viewed individual creativity as a final product or outcome of the aggregation of creativity versus habitual action.

Drazin (1999) stated that "group creativity requires that individuals first choose to engage in individual-level creativity" (1999: 291). Team creativity is not just the combination of total individual creativity or the average of individual creativity. Rather it is the outcome of social collaboration and the influence of creative individuals (Drazin et al., 1999). Woodman (1993) suggested that the creativity of an individual can enhance the creativity of a team. However, a clear theoretical explanation of this concept has not been presented.

Gong et al. (2013) proposed a multilevel theory of creativity that connects individual creativity and team creativity in their study. According to the social information processing theory (Salancik and Pfeffer, 1978), the focus is on acquiring expectations, norms, and attitudes rather than just knowledge and ideas. The creative behaviors of individual members send signals to others about expected behaviors and performance, through the informational social influence process, this creates a supportive climate for creativity. This includes the norms of creativity, which involve expecting and approving of new and improved ways of doing things, as well as providing practical support for their development (Gong, Kim, Lee, & Zhu, 2013).

To conclude, individual creativity can be seen as the one important criterion for assessing team creativity because team is basically composed of a sum of individuals.

- Cognitive styles and personality (I.1.1.3.1.4C)

Cognitive styles or thinking styles are the sources of team creative performance. Kutzberg (2005) conducted two studies that examined the effect of cognitive style on team creative performance. The results showed that diversity in cognitive style was positively related to fluency which is the number of ideas generated. In addition, Basadur and Head (2001) highlighted that diversity in cognitive style have an important impact on team creativity. Taggar (2002) mentioned that teams include more individuals who are creative, tend to show greater creativity. To conclude, team composition in terms of cognitive style and Big five personality may be important to understanding team creativity. Also, Big five personality and general cognitive styles can be thought of as causing the components of individual creativity which are task motivation, domain relevant skills, and creativity relevant processes (as refers to componential theory).



- Innovative behavior (I.1.1.3.1.5C)

Innovative behavior is defined as "an employee's intentional introduction or application of new ideas, products, processes and procedures to their work role, work unit or organization" (West and Farr, 1989). Examples of such behaviors include searching out new technology, suggesting new way to achieve objectives, applying new work methods, investigating and searching resources to implement new ideas. Antecedents of innovative behavior of individuals such as individual difference (Scott & Bruce, 1994), has been examined how the individual difference and contextual variables impact innovative behavior through the perceptions of organizational climate for innovation.

Janssen (2000) and Scott & Bruce (1994) conceptualize innovative behavior as "complex behavior consisting of activities regarding to both the generation of new ideas (by oneself or adopted from others) and realization or implementation of new ideas." One related construct in the literature is "Creative Behavior" which refers to "behavior regarding to the generation of ideas that are both novel and useful (Amabile, 1988). Thus, creative behavior is considered as one type of innovation behavior because it includes not only generation of novel ideas by oneself but also adopting others' ideas that are new to the team (Woodman, 1993).

#### **4.5.1.1.2 Diversity (I.1.2)**

- Demographic diversity (I.1.2.1.2.1C)

Team diversity refers to "the distribution of differences among members of a team with respect to a common attribute" (Harrison & Klein, 2007, p.1). The relationship between demographic diversity and team performance in terms of

creativity, has shown both positive and negative effects. The demographic diversity could improve team performance (team creativity) based on the informational diversity – cognitive resource perspective (e.g., Cox & Blake, 1991; Williams & O'Reilly, 1998), which suggests that the distribution of differences can serve as indicators of available knowledge and different perspectives. A team with demographic diversity related to the task may be more successful than homogenous team because the demographic diversity team can draw on the greater pool of knowledge and different perspectives. Thus, the diversity of attributes that are "highly job related" (e.g., educational background, functional background) are seen to be positively related to team performance (team creativity) whereas those that are "less job related" (e.g., age, gender, race) are not (Pelled, 1996).

As shown in Horwitz and Horwitz (2007), they also found that highly job related (task-related) demographic diversity is positively related to the quality and quantity of team performance whereas less job-related diversity such as biodemographic, has not related to team performance.

- Functional diversity (I.1.2.1.3C)

Functional diversity refers to a vary of educational and training backgrounds of an individual, "the degree to which team members differ in terms of their experience with a function in which they have spent the greater part of their career" (Bunderson & Sutcliffe, 2002, p.878). Models of team creativity highlighted this type of diversity (functional diversity) that facilitate creativity in teams (Woodman et al., 1993). Most research found positive effects of functional diversity and team creativity by suggesting teams that have diverse functional background outperform homogenous teams (in terms

of team creativity and innovation) (Fay et al., 2006; Keller, 2001; Hülshager et al., 2009).

- Cognitive diversity (I.1.2.1.2C)

Cognitive diversity stimulates team creativity because the different or divergent perspectives may encourage team members to generate more creative ideas. The information and decision-making theories suggest that cognitive diversity bring a variety of knowledge, skills and abilities (KSA) and new ideas to the team. Such various range of KSA can produce more alternatives and products. Team members with different thinking styles will use different perspectives to process knowledge and information, therefore will help the team to analyze challenge and problem using various angles and many possibilities of choices. Then the teams will expect to make better in decision-making and to generate more creative ideas than low cognitive diversity teams (Kurtzberg, 2005). The study of Wang (2016) shown that transformational leadership moderated cognitive diversity's direct effect on team intrinsic motivation and indirect effect on team creativity via team intrinsic motivation, such that the effects were positive when transformational leadership was high, but negative when transformational leadership was low (Wang, Kim, Lee, 2016). Younis (2019) supported that cognitive diversity can affect creativity through collaborative climate such as organizational culture, immediate supervisor, employee attitude and work group support for example.

#### **4.5.1.2 Team-level inputs (I.2)**

##### **4.5.1.2.1 Team leadership (I.2.3)**

- Transformational leadership (I.2.3.2C)

Transformational leadership is the key predictor of team leadership styles which facilitates team intrinsic motivation. This type of leadership can inspire enthusiasm and boost creativity among team members. Thus, transformational leadership has shown the significant factors or dimensions for team creativity. Transformational leadership is defined as "a team leader's ability to motivate team members to transcend their self-interest in pursuit of collective goals, known as a leader's abilities and behaviors to motivate followers to perform beyond expectations through inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration" (Bass, 1985). Therefore, transformational leadership has been identified as one of the most important leadership styles for facilitates team creativity (Shin & Zhou, 2007; Shin & Eom, 2014; Wang, Kim and Lee, 2016; Ali et al., 2019; Kim et al., 2019; Lee et al., 2019; Zhang et al., 2019). Shin and Zhou (2007) have studied quantitative/survey using 75 research and development teams in Korea. They found that transformational leadership moderated the relation between educational specialization heterogeneity and team creativity. When the team lead by transformational leaders, teams have high level on educational specialization heterogeneity, therefore greater team creativity. The study also found the new construct that is team creative efficacy. was positively related to team creativity and mediated the moderated relation among team educational specialization heterogeneity, transformational leadership, and team creativity (Shin & Zhou, 2007). Transformational leadership also have relationship with task conflict by moderating all paths through which task conflict affects team creativity (Lee et al., 2019).

From the study of Kim et al. (2019), they theorized model based on group creativity model of Paulus (2008). They found that transformational leadership fosters

team level creativity via the individual level underlying some mechanisms such as psychological safety and individual creativity (Kim, 2019). Some mechanism such as transactive memory system, has shown as the mediating relationship between task interdependence and team creative performance and moderated by transformational leadership as indirect relationship. The mediated relationship will be strong when the transformational leadership is high (Ali, 2019). The study of Zhang (2019) shown the relationship between personality heterogeneity and idea development moderated by transformational leadership. The finding from this research was shown that transformational leaders motivate team members to share their ideas and knowledge and provide psychological safety for accepting the different opinion between each other which contribute to harmonious environment in organization (Zhang, 2019). In addition, transformational leadership serves as "a catalyst that facilitates the development of team intrinsic motivation in cognitively diverse teams because it can enhance employees' enthusiasm for the activity" (Wang, 2016).

#### **4.5.1.2.2 Team structure (I.2.4)**

- Team size (I.2.4.4C)

According to Stewart (2006) and Hülshager (2009), having larger teams can be advantageous when it comes to tackling difficult tasks in complex and uncertain environments. A team with enough members can contribute a wide range of knowledge, skills, expertise, and resources to complete their work, especially tasks that are not well-defined. Research on brainstorming also indicates that having more people can lead to a greater number and quality of creative ideas. However, Paulus, Baruah, and Kenworthy (2018) stress that while the number of ideas might increase with a larger

group, the number of ideas generated by individuals could decrease due to production blocking, social loafing, and downward comparison. Therefore, it is important to ensure that the team size is not be larger than necessary.

#### **4.5.1.2.3 Interdependence (I.2.1)**

- Task interdependence (I.2.1.1C)

Task interdependence describes "the extent to which team members must rely on one another for input and resources such as materials, information and expertise to perform a team task" (Cummings, 1978). Also, it refers to "the extent to which team members are dependent on one another to carry out their tasks and perform effectively" (Hülshager et al., 2009, p.1129). Task interdependence is significantly related to knowledge sharing and the interaction between knowledge sharing and task interdependence is significantly related to team creativity (Gu, 2018). High interdependence within teams has strengthened the importance of team-efficacy (belief in the capabilities of the team on a specific task) and team cohesion (the degree to which a team is united in its work through goals and objectives) on performance (Gully, Devine, & Whitney, 1995; Gully et al., 2002) Thompson (the organizational theorist), identified three types of task interdependence (Figure 4.7) that can be used to design your team such as pooled, sequential, and reciprocal as following:

- Pooled task interdependence: each team member makes separate and independent contributions to team performance. This type of interdependence requires low communication within team.

- Sequential task interdependence: it requires specific behaviors to be performed by team members in a predetermined order. This type of interdependence requires medium communication within team.
- Reciprocal task interdependence: the activities of all work team members are fully dependent on one another so that each member's performance influences the performance of every other member of the team. Thus, this type of interdependence requires high communication within team (e.g., basketball team).

Table 4.6 presents the summary of the classification of task interdependence and management implications.

**Figure 4.7**

*Task Interdependence*

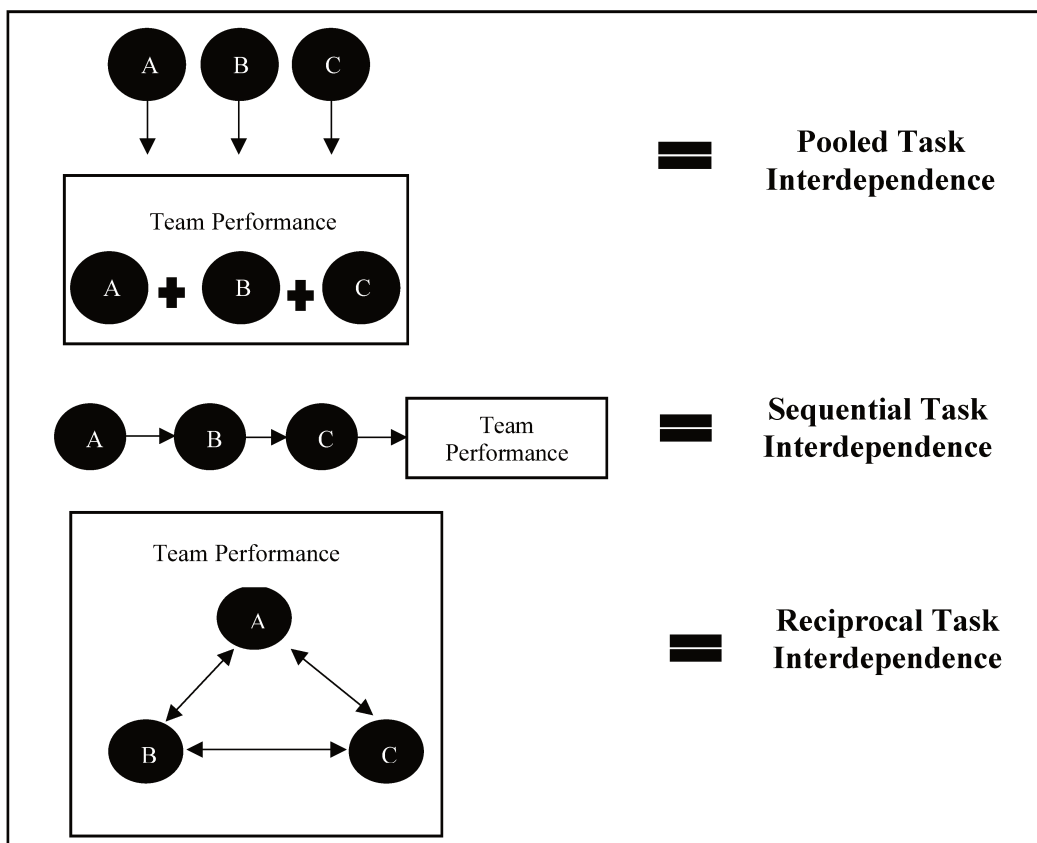





Table 4.6

*Thompson's Classification of Interdependence and Management Implications (Thompson, 1967)*

Form of Interdependence	Demands on Horizontal Communications, Decision Making	Type of Coordination Required	Priority for Locating Units Close Together
Pooled (bank)  <b>Client</b>	Low communication	Standardization, rules, procedures Divisional Structure	Low
Sequential (assembly line)  <b>Client</b>	Medium communication	Plans, schedules, feedback Task Forces	Medium
Reciprocal (hospital)  <b>Client</b>	High communication	Mutual adjustment, cross-departmental meetings, teamwork Horizontal Structure	High

#### 4.5.1.3 Organizational and Contextual inputs (I.3)

##### 4.5.1.3.1 Organizational Contexts (I.3.1)

- Budget (I.3.1.4C)

Budget plays a crucial role in management coordination and control mechanism within organizations (Arnold & Artz, 2019). It relies on two primary functions, as described by Ekholm and Wallin (2011): "1. planning, coordination, resource allocation, and determining operational volumes, and 2. dialogue, encompassing communication, awareness raising, motivation, and the pursuit of new opportunities while maintaining control to achieve goals (Arnold & Gillenkirch, 2015)." The budget encourages managers to be more creative, whether it's used for any purpose. This means that budgets can be a tool to boost creativity in an organization. However, while both types of budgets can foster creativity, the enabling budget promotes creativity in the organization more effectively than the forceful type (Silva, Magro, Souza & Monteiro,



2020). The results also indicate that empowerment does not affect the relationship between the force use of a budget and organizational creativity. The difficulty in promoting creativity may be related to the lack of dialogue the force use of a budget promotes, caused, in this case, by the distance created by managers with a feeling of empowerment. Therefore, organizations adopting an enabling budget promote organizational dialogue, enabling empowered managers to obtain an effect different from that obtained by companies that only use budgets focused on the planning role (force type). This confirms that empowerment mediates the relationship between a budget's roles in dialogue and organizational creativity (Silva, Magro, Souza & Monteiro, 2020). Moreover, Silva & Lavarda, (2020) concluded that employees interpret the highest level of perceived usefulness of the budget as providing more freedom rather than imposing greater restrictions. This perception is linked to the fact that the budget's enhanced usefulness supports intrinsic motivation and self-regulated behavior, cultivating an environment that encourages creativity rather than one perceived as controlling (Silva & Lavarda, 2020).

- Human Resource Systems (I.3.1.1) such as:
  - Rewards (I.3.1.1.5C)

Intrinsic and extrinsic rewards play important roles in motivating individuals to engage in activities. Intrinsic motivation refers to "the internal desire to perform an activity for its inherent enjoyment and satisfaction, with no expectation of external rewards" (Amabile et al., 1994; Sagiv et al., 2010). For intrinsically motivated individuals, the activity itself becomes its own reward (Lepper et al., 1973). However, extrinsic motivation involves performing an activity to attain outcomes other than the activity itself (Deci and Ryan, 1985). Extrinsic motivation arises from perceiving a

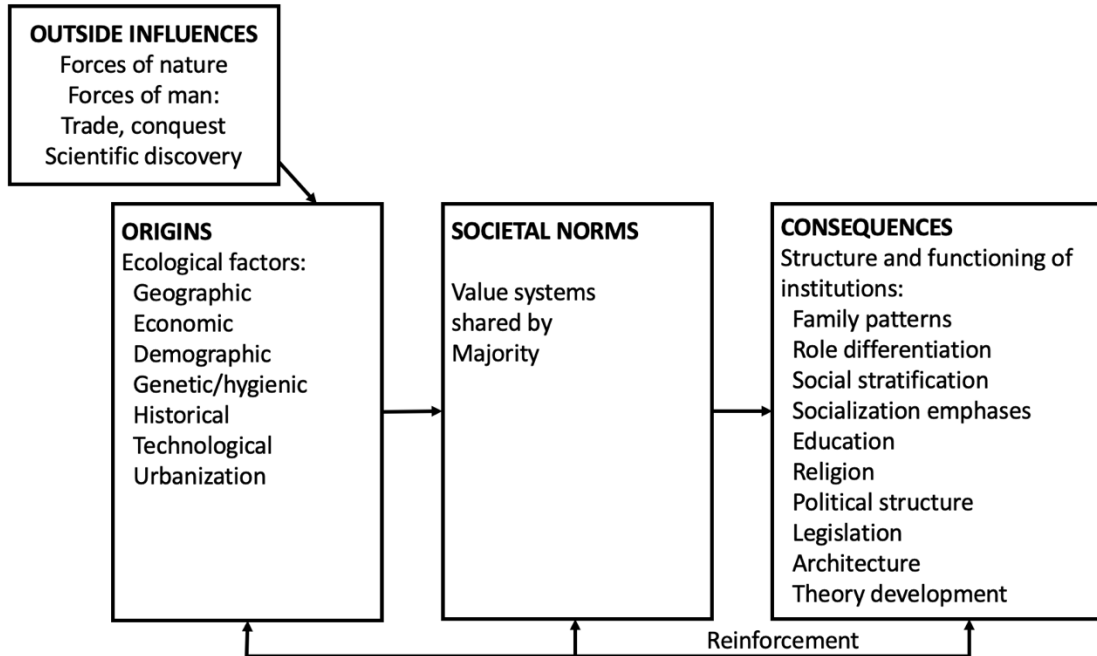
connection between behavior and external rewards, while intrinsic motivation is not dependent on any external reward (Cooper and Jayatilaka, 2006; Deci and Ryan, 1985). Intrinsic rewards are those that provoke intrinsic motivation and include feelings of accomplishment, satisfaction, and enjoyment derived from the activity. On the other hand, extrinsic rewards trigger extrinsic motivation and encompass financial and non-financial rewards such as promotions and recognition. Researchers studying the impact of rewards on creative behavior have employed various methodologies, including experimental and survey-based approaches. In experimental studies, extrinsic rewards are introduced by offering participants, often students, different types of rewards (financial and/or non-financial). These include engagement-contingent rewards, provided solely for participating in the activity regardless of the outcome (Hitt et al., 1992; Selart et al., 2008). Other types of rewards used in research include performance-contingent rewards (given to top performers; Tripathy & Agarwal, 1988, Li et al., 2022), completion-contingent rewards (given upon successful task completion; Arnold, 1985), and creativity-contingent rewards (given to the most creative individuals; Friedman, 2009). The level of creativity demonstrated by employees has a considerable influence on their work performance (Drucker, 2012). According to expectancy theory, extrinsic rewards can only be effective in fostering creativity if employees value the rewards and have a firm belief in accomplishing creative objectives (Malik et al., 2015). Additionally, some studies have examined the effects of verbal (Anderson and Rodin, 1989) and unannounced rewards compared to announced rewards (Eisenstein, 1985). To measure intrinsic rewards, experimental researchers have relied on free choice behavior, observing the time spent in an activity when no extrinsic rewards are associated with it. Using survey-based research, scales such as the Work Preference

Inventory (Amabile et al., 1994) have been developed to operationalize the presence of both extrinsic and intrinsic rewards. Understanding the distinction between intrinsic and extrinsic rewards is essential for comprehending how they influence creativity and motivation in various settings. Implementing effective reward systems can promote a balanced approach that enhances both intrinsic and extrinsic motivation, thus fostering a more creative and engaged workforce.

#### **4.5.1.3.2 Environmental Contexts (I.3.2)**

- Cultural influence on teams (I.3.2.1)
  - A team climate variable (I.3.2.1.1)
    - Culture (I.3.2.1.1.6C)

Culture is defined as "the collective programming of the human mind that distinguishes the members of one human group from those of another. Culture, in this sense, is a system of collectively held values. Culture could be defined as the interactive aggregate of common characteristics that influence a human group's response to its environment" (Hofstede, 1980). Culture determines collective identity in the same way that personality determines the individual identity. The term "culture" is typically used to describe societies or ethnic and regional groups, but it can also be applied to other human collectivities, such as organizations, professions, or families. Hofstede (1980) proposed the framework for the stabilizing of culture patterns as shown in Figure 4.8

**Figure 4.8***The stabilizing of culture patterns (Hofstede, 1980)*

The culture patterns mechanism operates as in Figure 4.8. The center is a system of social norms, including value systems (the mental programs) shared by most of the population (Parsons, 1971). Their origins are various ecological factors that affect the physical environment. Social norms have influenced the creation and maintenance of social institutions that have a specific structure and mode of operation. Examples of these institutions are the family, education systems, politics, and legislation. Once institutions are established, they strengthen the societal norms and ecological conditions that gave rise to them. While institutions can be changed, this doesn't always impact the societal norms. If these norms remain the same, the dominant value system gradually shapes new institutions until their structure and operations conform to the societal norms once again.

#### 4.5.1.4 Summary

As a result of the systematic literature review, these top ten inputs/factors are represented as the most positive influence factors for team creativity (by looking at the highest scores of academic impact citation on each factors). As shown in Figure 35, some factors are overlapped such as creative personality and innovative behavior. As innovative behavior may include creative behavior, it can be referred to as creative personality. Moreover, innovative behavior refers to both generating and implementing new ideas to the team.

- According to the Big five personality, it has shown that high in openness to experience of team members could lead to high levels of idea generated, hence increases creativity. However, low levels of conscientiousness of individuals could lead to team creativity. Some of big five personality such as high extraversion, high openness to experience, low conscientiousness, high neuroticism, low agreeableness would happen when team experienced high levels of "Team Creative Confidence" which is "a shared understanding that the team is more creative than each team member individually" (Baer, 2008).
- Secondly, Individual creativity is the one components of team creativity. Our assumption is that team creativity is not just a sum of individual creativity. But a sum of individual creativity would be one essential component to assess team creativity. A team is basically composed of individuals. Individual creativity composes of three components including individual differences in levels of domain relevant skills (expertise), creativity relevant processes (creativity thinking) and intrinsic task motivation (Amabile, 1988). Research has shown that individual creativity contributes to team creativity.

- Different cognitive styles or thinking styles of team members could boost creativity within teams. It helps team creativity by offering a variety of ideas and perspectives of team members. Also, team members who have different of thinking styles or different ways of problem solving, are more likely to be creative which facilitate team creativity.
- Three types of diversity which are demographic, functional, and cognitive diversity, have to get along with each other. In other words, these three types of diversity also have impact on team creativity if they are linked to highly job related.
- Transformational leadership is an outstanding criterion for facilitating team creativity. Good leaders can act as a facilitator within their teams by creating safety environment, supporting team members, communicating clearly, managing conflict and so on. Thus, this type of dimension (leadership) could link to many other dimensions/factors such as communication, collaboration, conflict, trust and psychological safety etc.
- Team should have a clear structure and suitable size for their project.
- Task interdependence means "the extent to which team members must rely on one another for input and resources such as materials, information and expertise to perform a team task" (Cummings, 1978). For team creativity, it needs reciprocal task interdependence, which requires teamwork and high communication. This kind of task can be represented the teamwork such as a basketball team. All work team members are fully dependent on one another so that each member's performance influences the performance of every other member of the team.

- Employees interpret the highest level of perceived usefulness of the budget as providing more freedom rather than imposing greater restrictions. This perception is linked to the fact that the budget's enhanced usefulness supports intrinsic motivation and self-regulated behavior, cultivating an environment that encourages creativity rather than one perceived as controlling (Silva & Lavarda, 2020).
- Intrinsic and Extrinsic rewards also play important roles in stimulating or inhibiting creativity. For intrinsically motivated individuals, the activity itself becomes its own reward (Lepper et al., 1973). Intrinsic rewards include feelings of accomplishment, satisfaction, and enjoyment derived from the activity. However, extrinsic motivation involves performing an activity to attain outcomes beyond the activity itself (Deci and Ryan, 1985). Extrinsic rewards, that trigger extrinsic motivation include both financial and non-financial rewards such as promotions and recognition.
- Culture employs a deep impact on organizations, affecting power dynamics, goal setting, decision-making, organizational structure, and reward systems. Understanding the role of culture in shaping these aspects is essential for comprehending the functioning and dynamics of organizations in diverse cultural contexts (Hofstede, 1980)

It seems that team creativity is first composed of individuals (creativity) which have some specific personality (e.g., openness to experience, innovative behavior) and different cognitive and thinking styles. Team should have diverse which related to high job-related (task-related) such as educational background. Team leader should act as a facilitator in team to promote the safe environment and communicate clearly.

Moreover, team size should not be large than necessary. Reciprocal task interdependence is suitable for teamwork (team creativity). Reasonable budgets and incentives as rewards also encourage creativity in team. Furthermore, culture exerts a profound influence on organizations, leaving a deep impact on power dynamics, goal setting, decision-making, organizational structure, and reward systems.

#### **4.5.2 MEDIATORS**

In IMOI (Input-Mediator-Output-Input) model, mediators consist of "a set of psychological mechanisms that permit team members to combine the available resources for performing the work assigned by the organization, overcoming the difficulties involved in the coordination and motivation of their members" (Rico et al., 2011, Mathieu, 2008).

The results show that Communication and Collaboration factors which included in interpersonal processes, have significantly related to team creativity (top 10 factors). For motivation and confidence building (also in interpersonal processes), factors that show a significant relation to team creativity are Competition, and Intrinsic motivation. The team creative processes such as idea generation, is also included in top 10 factors.

Besides team processes factors, there are Emergent states which is "Cognitive, motivational and affective states of teams (that are) ... dynamic in nature and vary function of team context, inputs, processes and outcomes" (Mark et al., 2001, p.357). As a result of SLR, it found that Vision, Risk-taking, Safety are included in top 10 factors of the mediators. In addition, the factors in Blended mediators, such as Knowledge sharing in team learning is also included in the top 10 factors.

The lists of top 10 factors in each category are shown as below:



**Mediators include:**

## 1. Team processes

- Interpersonal processes (Interactions -> Internal): Communication and Collaboration
- Interpersonal processes (Interactions -> External): Social networks
- Interpersonal processes (Motivation and Confidence building): Competition, Intrinsic motivation
- Team creative processes: Idea generation

## 2. Emergent states

- Collective cognition: Vision
- Team climate (safety climate): Risk-taking and Safety

Then, we describe two factors that are also important but not listed in the top 10 factors:

- Trust and Psychological safety

## 3. Blended mediators

- Team learning: Knowledge sharing

**4.5.2.1 Team processes (M.1)**

Team processes have been seen as the important mediators of IMOT model (Inputs-Mediators-Outcomes-Times). Mark (2001) developed a taxonomy of processes which included three categories: transition, action, interpersonal. Later Mathieu (2008) proposed five categories which included taskwork (M.1.1), transition (M.1.2), action (M.1.3), interpersonal (M.1.4), team creative processes (M.1.5). However, in the top 10 factors, it refers to interpersonal (M.1.4) and team creative processes (M.1.5).

- Interpersonal process (M.1.4)
  - Internal (M.1.4.3.1)
    - Communication (M.1.4.3.1.1C)

There is a distinction between internal and external communication. Internal communication refers to communication among team members, however, external communication pertains to communication with individuals outside the team and organization. According to Keller's (2001) meta-analysis, external communication has a positive correlation with organizational innovation, with internal communication having an even stronger relationship. Therefore, external communication is considered one of the most significant predictors of team creativity and innovation (Hülshager et al., 2009). There is a suggestion that external communication is a key predictor of team creativity and innovation. This is because such communication can provide a range of information to the team, which can help to make their ideas more creative. Moreover, Perry-Smith and Shalley (2003) also suggested that using a social network approach would be beneficial; strength of network ties would be an important source of creativity and innovation, with weak network ties related to increased creativity and innovation.

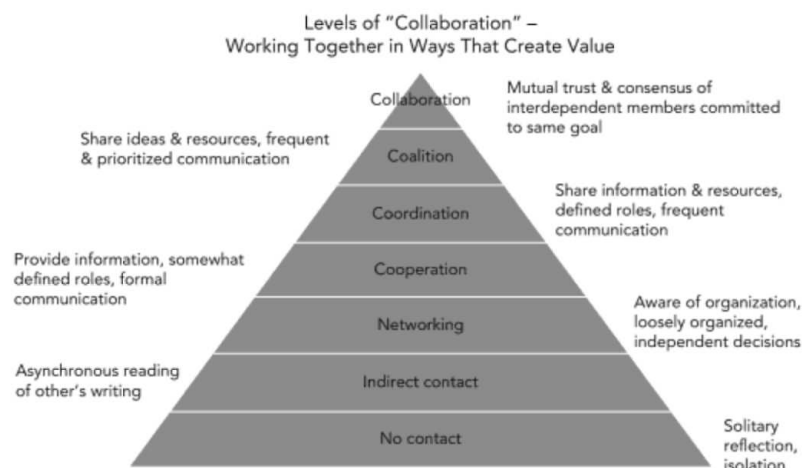
Studies show that effective communication is key to high performing teams (Marks, Mathieu, & Zaccaro, 2001). Hülshager et al.'s (2009) meta-analysis found that internal communication is positively related to team creativity. Other research supports the idea that internal communication boosts participation and socialization, which can lead to more creative teams (Gilson & Shalley, 2004). Additionally, psychological safety encourages team members to openly discuss and share information (Edmondson, 1999).

- Collaboration (M.1.4.3.1.2C)

Collaboration is a process for enabling creativity in teams. It has varied meanings depending on the context of situation such as when creativity is needed (Burke et al., 2006; Janssens & Brett, 2006). Collaboration or collaborate from the Latin word has a simple meaning as "to work together". Wood and Gray (1991) proposed the definition of collaboration as "collaboration occurs when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structures, to act or decide issues relate to that domain" (p.146). Thus, the term of collaboration has been used generally to represent the broad area of communication, specifically to represent a high quality of communication process. Mattessich, Murray-Close and Monsey (2001) define collaboration as a well-defined relationship to achieve the common goals. The process of collaboration involves exchange between persons on face to face or virtual that enable information sharing, so, the collaboration is not simply referred to the conversation and meeting. It requires co-creative process such as sharing information, asking question, propose ideas, relationship building, shared decision making and so on.

**Figure 4.9**

*Levels of Collaboration (Adapted from Beyerlein, 2018)*



As shown in Figure 4.9, the levels of collaboration, presents all the way people work with each other. One team can be involved in most or all of seven levels during the one project.

Additionally, many studies found the relationship between collaboration and team creativity and innovation. The study of Drach-Zahavy, and Somech (2001) found that collaboration, cooperation, and sharing information were positively related to team innovation. Also, Pearce and Ensley (2004) found that team evaluations of collaboration correlated strongly with team evaluations of their own creative performance. Mitchell, Boyle, and Nicholas (2009), evaluating 98 teams from a variety of organizations, found that team goals which stressed collaboration and cooperation were related to new idea generation. These studies support that collaboration facilitates open communication and interactions, which contribute to team creativity and innovation.

- Interpersonal process (M.1.4)
  - External (M.1.4.3.2)
    - Social Networks (M.1.4.3.2.1C)

Social networks provide opportunities and limitations that influence individual attitudes and behaviors (Brass, Galaskiewicz, Greve, & Tsai, 2004). The social networks of employees have the potential to be valuable sources of diverse knowledge and creativity (e.g., Brass, 1995; Burt, 2004; Perry-Smith, 2006; Perry-Smith & Shalley, 2003). A study by Hülshager, Anderson, and Salgado (2009) highlighted that communicating with others plays a significant role in promoting creativity and innovation. Zhou et al., (2009) adopt an interactional perspective (Woodman, Sawyer,

& Griffin, 1993) and build on the previous network research (Brass, 1995; Burt, 2004; Perry-Smith, 2006; Perry-Smith & Shalley, 2003). The researchers propose that networks with both weak and strong ties can either promote or hinder creativity by providing access to diverse knowledge. According to Zhou et al., (2009), they focused on advice ties (rather than, e.g., friendship or communication) because advice is an important source of new ideas. Previous research suggests that individuals, particularly those who do not work in research and development functions, tend to discuss ideas for solving work-related problems only with others who work within the same organization or unit. Therefore, it is suitable to concentrate on mapping out the internal social network of an entire organization. Additionally, Burt (2004) has also highlighted the importance of focusing on the internal social networks that influence creativity.

- Interpersonal processes (M.1.4)
  - Motivation and Confidence building (M.1.4.2)
    - Competition (M.1.4.2.1C)

Some research in competition and creativity has been conducted for individuals relating to incentiveness. These findings contribute to developing mixed literature on the effects of competition on individual creative output. Economists argue that competition can motivate the kind of risk-taking that is characteristic of inventive activity (e.g., Cabral, 2003; Anderson and Cabral, 2007). Intensifying competition can enhance creativity and collaboration both internal and external but heavy competition may decrease or lower creativity output (Gross, 2018).

- Intrinsic motivation (M.1.4.2.5C)

Team intrinsic motivation is defined as "the extent to which team members enjoy performing a team task for themselves and experience the pleasure and satisfaction inherent in the task" (Amabile, 1998, p.79). According to Amabile's (1996) componential theory of creativity, intrinsic motivation is the motivational mechanism of creativity or creative performance. As seen in Zhu's (2016) study, intrinsic motivation positively relates to all types of performance but especially to qualitative (complex, including creative) types versus quantitative (simple). This is because intrinsic motivation affects the choice to perform a particular task, the effort expended to achieve success on the task, and persistence at the task after achieving initial success (Cerasoli et al., 2014; Zhu, 2016).

- Team creative processes (M.1.5)
  - Idea generation (M.1.5.1.3C)

Team creativity involves cognitive processes at both individuals and team level such as creative problem-solving processes. Creative problem solving (CPS) includes idea generation stage which typically associated with creativity (Williams, Runco, & Berlow, 2016). The assumption of using idea generation in cross functional teams is that diverse teams would generate more creative ideas than homogenous teams because of the diversity of information available to team members (Reiter-Palmon & Leone, 2019).

Brainstorming has been suggested and used to facilitate idea generation. This is a way to help sharing information and ideas. The works of Paulus's group have

presented idea generation through brainstorming technique (e.g., Paulus & Dzindolet, 1993; Brown & Paulus, 2002; Paulus, Nakui, Putman, & Brown, 2006; Putman & Paulus, 2009; Paulus, Kohn, Arditti, Korde, 2013). Paulus & Kenworthy (2019) have also presented an extensive literature on brainstorming which provides a strong basis for the best way for idea generation in teams. They examined the uses of verbal brainstorming, electronic brainstorming and brainwriting for generation of creative ideas. According to brainstorming techniques, Paulus and Brown (2003) found that providing additional guidelines for brainstorming increased the fluency of idea generation in teams. Additionally, Paulus et al. (2006) found that teams which provided rules for brainstorming generated more ideas than teams that were given no rules. These results suggest that rules, and instructions can play an important role in idea generation in teams.

#### **4.5.2.2 Emergent states (M.2)**

Team emergent states refer to the beliefs that team members have about the team's goals, interpersonal norms, and each other's abilities. These beliefs form early on in the team formation process and continue to evolve as the team works together (Marks et al., 2001; Cronin et al., 2011; Edmondson and Harvey, 2018). As they become more coherent across team members (Kozlowski and Chao, 2012), they guide behaviors within the team. The emergence of these states is dynamic, as they develop in response to experiences and observations of team member interactions, and these experiences and observations both shape and are shaped by the accumulating beliefs.

#### **4.5.2.2.1 Collective cognition (M.2.6)**

- Vision (M.2.6.2.3C)

West (1990) proposed four team climate factors that facilitate creativity and innovation: vision, participative safety, task orientation, and support for innovation. Vision refers to "an idea of a valued outcome which represents a higher order goal and motivating force at work" (West, 1990, p. 310). The key function of a vision is the "clarity of and commitment to objectives" (West and Anderson, 1996, p. 682). A clear and inspiring vision of leader should be communicated to all team members to get people together and motivate them to carry on with their creative efforts (Gordon, 2017). Many studies have supported the role of shared vision and team creativity (e.g., West, 1990; West and Anderson, 1996; Gilson and Shalley, 2004). Vision is the sub concept of task orientation, which is "a shared concern with excellence of quality of task performance in relation to shared vision or outcomes" (West, 1990, p. 313). In addition, Hülshager et al.'s (2009) meta-analysis found that shared vision ( $p = 0.493$ ) was the strongest predictor of team creativity and innovation.

#### **4.5.2.2.2 Team climate (M.2.3)**

- Safety climate (M.2.3.3)
  - Risk-taking (M.2.3.3.4C)

Research has shown that taking risks is essential for fostering creativity. For example, Glover (1997) discovered that as the level of risk-taking increased amongst a group of students, their performance on the Torrance Test of Creative Thinking also improved in terms of flexibility and originality. Dewett (2007) found that employees



who were willing to take risks exhibited higher levels of both subjective ( $r = 0.26$ ) and objectively assessed creativity ( $r = 0.16$ ). Ma's (2009) meta-analysis further supports the significance of risk-taking in creativity. Hülsheger et al. (2009) argue that team members are more likely to take risks when they feel safe, trusted, and supported by their colleagues. Additionally, team members who feel a strong attachment to their colleagues are more persuaded to cooperate, interact, and exchange ideas (Hülsheger et al., 2009). Therefore, it is crucial for teams to cultivate trust and a positive interpersonal climate (West, 1990), and to establish a supportive work environment that promotes collaboration, socialization, and problem-solving (Tiwana & McLean, 2005).

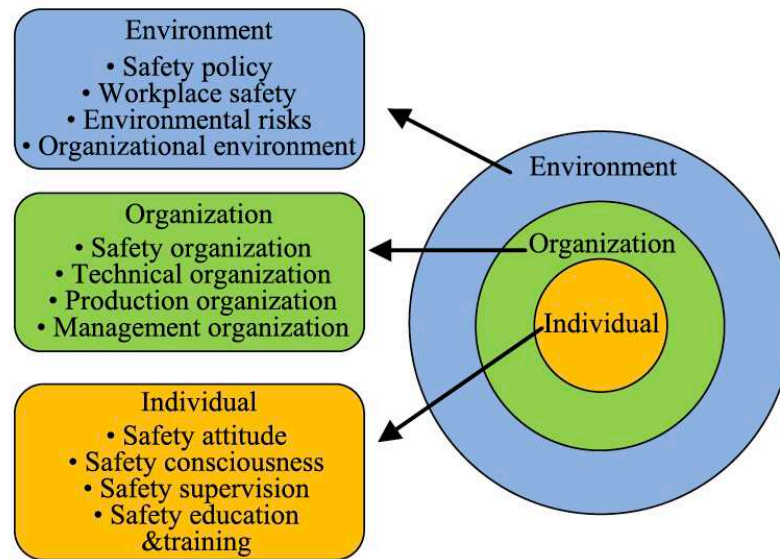
- Safety (M.2.3.3.3C)

Safety climate is defined as "the individual's psychological perception of the degree of an organization's safety and the status of its progress in consciousness and belief" (Luo, 2020). There are two main aspects to ownership when it comes to safety: 1. psychological safety climate pertains to an individual's perception and evaluation of the organization's safety practices; 2. safety climate can also exist independently of individuals, as a reflection of the organization's safety production and management. The concept of safety climate highlights the impact of various climates on system safety. Safety climate is crucial in comparison to organizational, management, and cultural climates as it serves as a fundamental requirement and a basic condition to ensure the safety of other climates. The dimensions of the safety climate can be seen in Figure 4.10 It seems that there are five key components that make up the basis of a general safety climate. These include 1. a commitment from management to prioritize safety, 2. support for safety from coworkers, 3. involvement of employees in safety-

related decisions and actions, 4. adherence to internal safety standards, and 5. the level of safety knowledge and skills possessed by employees.

**Figure 4.10**

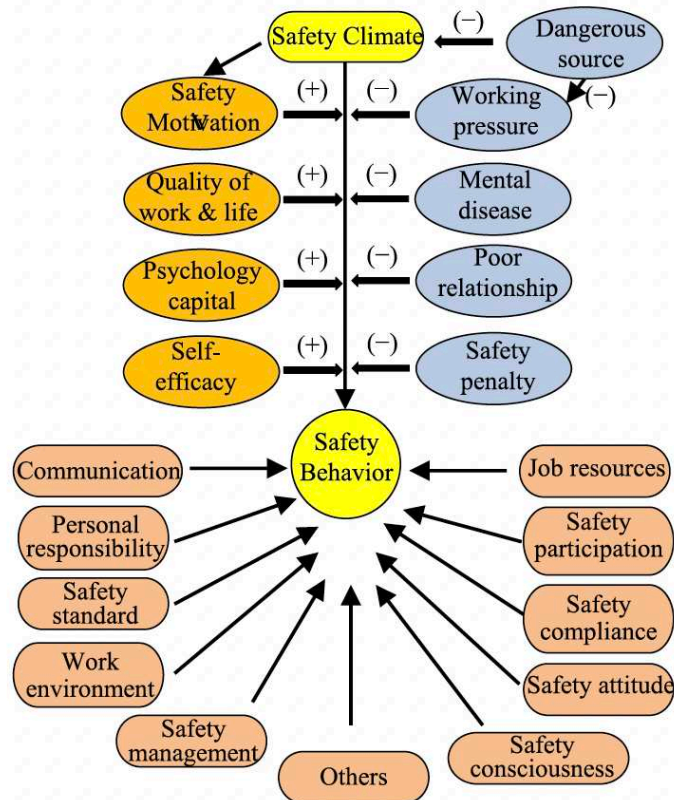
*The dimension of the safety climate (Luo, 2020)*



Additionally, several studies have discovered that the safety climate can influence safety behaviors by way of various intermediary factors. Researchers have delved into these connections by incorporating different mediating variables. As stated by Luo (2020), the factors that are directly or indirectly linked to safety behavior are complex, particularly regarding the link between safety climate and personal experience (Figure 4.11).

Figure 4.11

*The common mediating variables and their effects factors of safety climate (Luo, 2020)*



Notes: (+): Positive effects; (-): Negative effects.

#### 4.5.2.2.3 Trust (M.2.5)

- Trust (M.2.5.2C)

Trust is based on a team's belief that team has ability that can accomplish the task and will not harm the individual (Ilgen et al., 2005). Study of Gong (2013) and Reiter-Palmon (2012) showed that Trust was significantly related to creativity. Moreover, McAllister mentioned about, "Trust relationships - People make emotional investments in trust relationships, express genuine care and concern for the welfare of

partners, believe in the intrinsic virtue of such relationships.... Ultimately, the emotional ties linking individuals can provide the basis for trust" (McAllister, 1995, p.26). A sample of Gong (2013) presented a trust relationship with the team leader, "the team leader often has the most power in a team and is ultimately responsible for evaluating its members, a trust relationship with the team leader constitutes the critical relational context within which members engage in information exchange and creative activities" (Gong, 2013). Trust influences the extent to which the motivation to engage in risk-taking behaviors will lead to such behaviors (Dirks & Ferrin, 2001). Gong (2013) showed the moderator of the relationship that team goal orientation has with information exchange and, subsequently, creativity because it facilitates or hinders the motivational tendency for information exchange associated with a particular team goal orientation. When the trust relationship with the team leader is low/weak, the motivation to engage in idea exchange related with team learning goal is constrained, because the members feel less comfortable about doing so under this condition (Gong, 2013). Moreover, trust also leads to psychological safe in teams. According to Kahn (1990), he defined psychological safety as "the sense of being able to show and employ one's self without fear of negative consequences to self-image, status, or career" (p. 708). He also highlighted that psychological safety reflects supportive management, role clarity, and freedom of self-expression in the workplace. Edmondson (1999) expanded this construct to team level and defined psychological safety climate as "the shared belief among team members that they can safely engage in interpersonal risk taking." Taking these views together, psychological safety climate portrays an environment characterized by role clarity, interpersonal trust, and respect for individuality (Edmondson, 1999). Psychological safety and trust have both related to

the willingness of team members to openly discuss information (Salas et al., 2005). When trust is low, team has disagreements and conflicts, resulting in negative responses from team members and backup and support. Reiter-Palmon has suggested that team composition and diversity on team creativity should be evaluated as an antecedent to trust and psychological safety and communication or conflict could mediate the relationship between trust and psychological safety and team creativity (Reiter-Palmon, 2012).

#### **4.5.2.3 Blended mediators (M.3)**

##### **4.5.2.3.1 Team learning (M.3.1)**

Team learning, such as knowledge sharing has significant effects to team creativity. Team learning can be seen as "a product of social interactions within a team" (Edmondson, Dillon, and Roloff 2007). Decuyper, Dochy, and Van Den Bossche (2010) describe team learning as a compilation of team-level processes that generate change or improvement for teams, team members, and organizations. These processes include basic and facilitating team learning behaviors. The basic team learning behaviors is the power of the team's learning while facilitating learning behaviors influence the focus, context, and direction of team learning (Van Der Haar, Segers, and Jehn 2013). The three basic behaviors (sharing, co-construction, and constructive conflict) and three facilitating behaviors (team activity, team reflexivity, and boundary crossing).

- Knowledge sharing (M.3.1.1.3.2C)

Knowledge sharing (KS) is an activity through which knowledge (namely, information, skills, or expertise) is exchanged among people, friends, peers, families,

communities (for example, Wikipedia), or within or between organizations. In this KS process, individuals share explicit and tacit knowledge and work together to create new knowledge. Some mechanisms use for knowledge sharing are brainstorming and collaborative problem solving, teamwork, storytelling, meeting. Also, information technology-based mechanisms such as videoconference, e-mail, web-based discussion, and knowledge sharing boards. Previous studies have shown that KS in teams lead to increase team performance in different environments such as R&D, new product development and software development (Lee et al., 2010). Knowledge sharing leads to better performance in terms of better decision making and coordination (Zárraga & Bonache, 2003). One of the prerequisites of knowledge sharing is interpersonal trust that help team members willing to share their knowledge if they are higher trust to each other (Al-Alawi et al., 2007). Thus, interpersonal trust is positively related to KS. Whitener et al. (1998) suggested that team members with stronger trust are more likely to work collaboratively and conscientiously.

Other prerequisites for knowledge sharing such as leader behaviors, team climate (Eppler & Sukowski, 2000) and rewards (Choi et al., 2008), are used as serving collaborator for openly sharing team information, providing feedback, creating “high care” climate, and motivating members (incentives).

#### **4.5.2.4 Summary**

In IMOT model, team processes and emergent states are act as a central process between inputs and outcome (which is team creativity). Top ten mediators of internal team processes such as communication and collaboration, have a strong impact on team creativity.

- Collaboration which facilitates creativity and teamwork, also requires communication. The term of collaboration has been used generally to represent the broad area of communication, specifically to represent a high quality of communication process. Moreover, external communication was one of the strongest predictors of team creativity and innovation (Hülshager et al., 2009). Because members can externally communicate outside team and organization for searching new ideas and resources. Communication, collaboration, and information sharing have positively effect on team creativity and innovation (Drach-Zahavy, and Somech, 2001). Collaboration supports open communication in teams, thus it related to idea generation. Information sharing is the center process to team performance, three factors that facilitate information sharing: task demonstrability, discussion structure, and cooperation. Also, three factors detract information sharing: information distribution, informational interdependence, and member heterogeneity.
- Social networks can enhance or hinder creativity in teams. As highlighted in Hülshager (2009), communicating with others plays a significant role in promoting creativity and innovation. Additionally, the social networks of employees have the potential to be valuable sources of diverse knowledge and creativity (e.g., Brass, 1995; Burt, 2004; Perry-Smith, 2006; Perry-Smith & Shalley, 2003).
- Interpersonal team processes that build motivation and confidence within team members are seen in these top ten dimensions/factors: Competition, Intrinsic motivation. Competition research and creativity have been conducted for individuals relating to incentives. Intensifying competition can enhance

creativity and collaboration, both internal and external but heavy competition may decrease or lower creativity output (Gross, 2018). Intrinsic motivation is a source of creativity. Amabile (1996) componential theory of creativity, intrinsic motivation is the motivational mechanism of creative performance. Person with high in task intrinsic motivation is more likely to generate the creative output than the one with low in task intrinsic motivation.

- Team creative process such as idea generation is the most important process that related to creativity. Research suggests that diverse team could generate more ideas than homogeneous team because they have a variety of information available. As the work of Paulus's group, brainstorming has been the way to facilitate idea generation.

Emergent states are the form in response to experiences and observations of team member interactions. It is also the central process between inputs and outcome, but it is not the processes.

- Vision which can be linked to team leader dimensions/factors, could be viewed as the one of team climate (West, 1990). Leaders who have strong vision and communicate it to their team members, tend to attract members together and motivate them to carry on their creative efforts. Vision is the sub concept of task orientation, which is "a shared concern with excellence of quality of task performance in relation to shared vision or outcomes" (West, 1990, p. 313). Hülshager et al.'s (2009) meta-analysis found that shared vision ( $p = 0.493$ ) was the strongest predictor of team creativity and innovation.



- Research in safety climate such as risk-taking and safety, has shown that people in the team are more willing to take risks when they feel safe, trusted, and supported by their teammates and leader. Team members who have strong feelings of attaching to other team members are more likely to cooperate, interact and exchange ideas (Hülshager et al., 2009). In addition, safety climate is linked with safety behavior and also has positive and negative influences on various factors such as self-efficacy and psychology capital etc. (Luo, 2020).
- Trust criterion/dimension can be viewed as the heart of team creativity. When team members trust each other, they can openly communicate, discuss information, share ideas and concern without fears. Trust also builds psychological safe in teams which is “the sense of being able to show and oneself without fear of negative consequences to self-image” (Kahn, 1990). Teams that have some levels of trust, can build the safety and support environments to their team members that facilitate creativity.
- Knowledge sharing leads to better performance (Zárraga & Bonache, 2003). One of the prerequisites of knowledge sharing is interpersonal trust that help team members willing to share their knowledge if they are higher trust to each other (Al-Alawi et al., 2007). So, knowledge sharing involves interpersonal trust, and support collaboration that fosters team creativity.

### **4.5.3 TIME**

Time includes

1. Developmental processes: Team longevity and Team tenure
2. Episodic cycles: Phase of project team life cycle
3. Task: Time pressure and Need for closure

#### **4.5.3.1 Developmental processes (T.1.1)**

- Team longevity (T.1.1.1C) and Team Tenure (T.1.1.2C)

Team tenure as same as longevity is defined as how long that the team members spending or working in their team. How long have you been in your present team? This is a specific factor/dimension for team creativity. The members have to know each other before, and they have been working or experiencing or facing problems/tasks within their team together (Shin & Zhou, 2007). However, in a sample of research and development (R&D) teams, Katz (1982) found that "with increasing tenure, teams displayed lower levels of communication with experts outside their own project group or organization" (Katz, 1982; West & Anderson, 1996). External contacts, however, are a source of innovation. They provide teams with new information and act as catalysts. Thus, "long-tenured teams develop routine work patterns and stable structures they are unwilling to change as they give them a sense of security. Moreover, through socialization processes and shared experiences, team members develop more homogeneous viewpoints over time" (Katz, 1982; West & Anderson, 1996, Hülshager, 2009).

#### **4.5.3.2 Episodic cycles (T.1.2)**

- Phase of project team life cycle (T.1.2.1C)

The study of Farh (2010), examined the relationship between task conflict and team creativity when the conflict occurs in a project team's life cycle. According to Gersick (1989, p. 278), "the project team's life cycle is divided into three phases; phase

1, every team applied a distinctive approach to its task which is last until precisely halfway via the team's allotted duration. Every team then underwent what he called a transition. In a concentration of the activity, teams dropped old patterns, reengaged with their outside supervisors, adopted new perspectives on their work, and made dramatic progress. The events that occurred during those transitions shaped, for every team, a new approach to its task. Those new approaches carried teams through a second major phase which Gersick (1989) called phase 2. as they executed plans created at their transition. Teams made one last shift in their behavior patterns just before their deadlines, when they launched into a final activity to finish their work, so it called this last phase completion" (Gersick, 1989, p. 278). In addition, the study of Chen and Chang (2005), also mentioned Tuckman's team project life cycle as "over time a team develops through the four hierarchical stages of forming, storming, norming, and performing. Later, a fifth stage called adjourning was added for teams disbanding upon completion of the project" (Tuckman & Jensen, 1977).

#### **4.5.3.3 Task (T.1.3)**

- Time pressure (T.1.3.1C) and Need for closure (T.1.3.2C)

Time pressure was defined as "either subjectively perceived time pressure or the imposition of a deadline – increases the rate of individual and group performance" (Kelly & Karau, 1999). Need for Cognitive Closure was defined as "a desire for a quick firm answer (any answer) to a question" (Kruglanski & Webster, 1996; Webster & Kruglanski, 1997). The researchers have examined the influence of time pressure on creativity and innovation with mixed findings. Chirumbolo (2004) shows that "for teams working under intense time pressure with ensuring need for closure, the creative

work taking place during team discussion is of lesser quality" (Chirumbolo et al, 2004; Cirella, 2014). The findings of Ohly and Fritz (2010) found that daily time pressure was a positive relate to daily creativity, however, Baer and Oldham (2006) found an inverted U-shaped relation between creative time pressure and creativity, when support for creativity and openness to experience were high (Anderson, 2014).

#### **4.5.3.4 Summary**

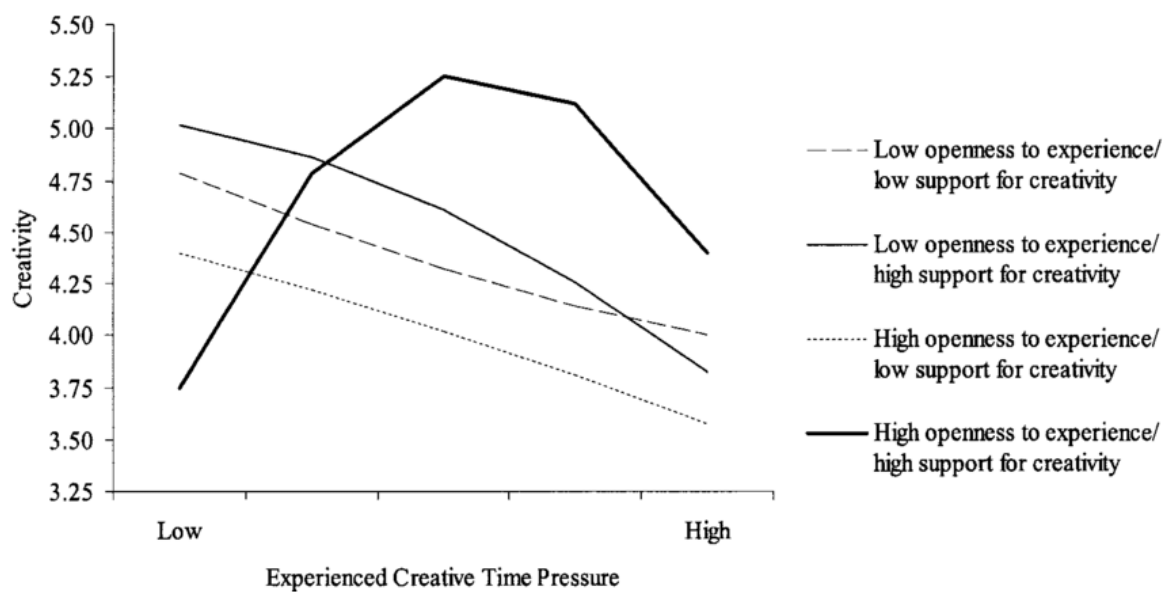
Time plays a critical role in team functioning. Team must execute different processes at different times. Team tenure and team longevity show how long team members work together. As they are experiencing problems and challenges together, they will have strong tenure within teams. They will have some kind of togetherness so, it is good for team collaboration, sharing ideas and information, proposing ideas without fears etc. Normally, phases of project life cycle depend on which team selected the processes. In this research, it presents Tuckman's team project life cycle as "over time a team develops through the four hierarchical stages of forming, storming, norming, and performing. Later, a fifth stage called adjourning was added for teams disbanding upon completion of the project" (Tuckman & Jensen, 1977).

For teams working under intense time pressure with ensuring need for closure, the creative work taking place during team discussion is of lesser quality (Chirumbolo et al, 2004; Cirella, 2014). This shows that high time pressure and the need for closure are lower creativity. However, an inverted U-shaped relation between creative time pressure and creativity, when support for creativity and openness to experience were high. Individuals with little support for creativity were shown less openness to

experience or both, increases in experienced creative time pressure (Baer & Oldham, 2006; Anderson et al., 2014).

**Figure 4.12**

*Curvilinear interaction of experienced creative time pressure, openness to experience, and support for creativity on creativity (Baer & Oldham, 2006)*



#### 4.6 Chapter Summary

This chapter provided a Systematic Literature Review (SLR), which answered RQ1.1 on What factors influence team creativity **in Theory**. The section clearly identified and summarized the dimensions and factors of team creativity in the literature. Moreover, we created a model that organized the factors that influence team creativity in theory. The Team Creativity IMOT model (TCIM) was provided, followed by an explanation of the top factors.

## CHAPTER 5

### WHAT FACTORS INFLUENCE TEAM CREATIVITY IN PRACTICE

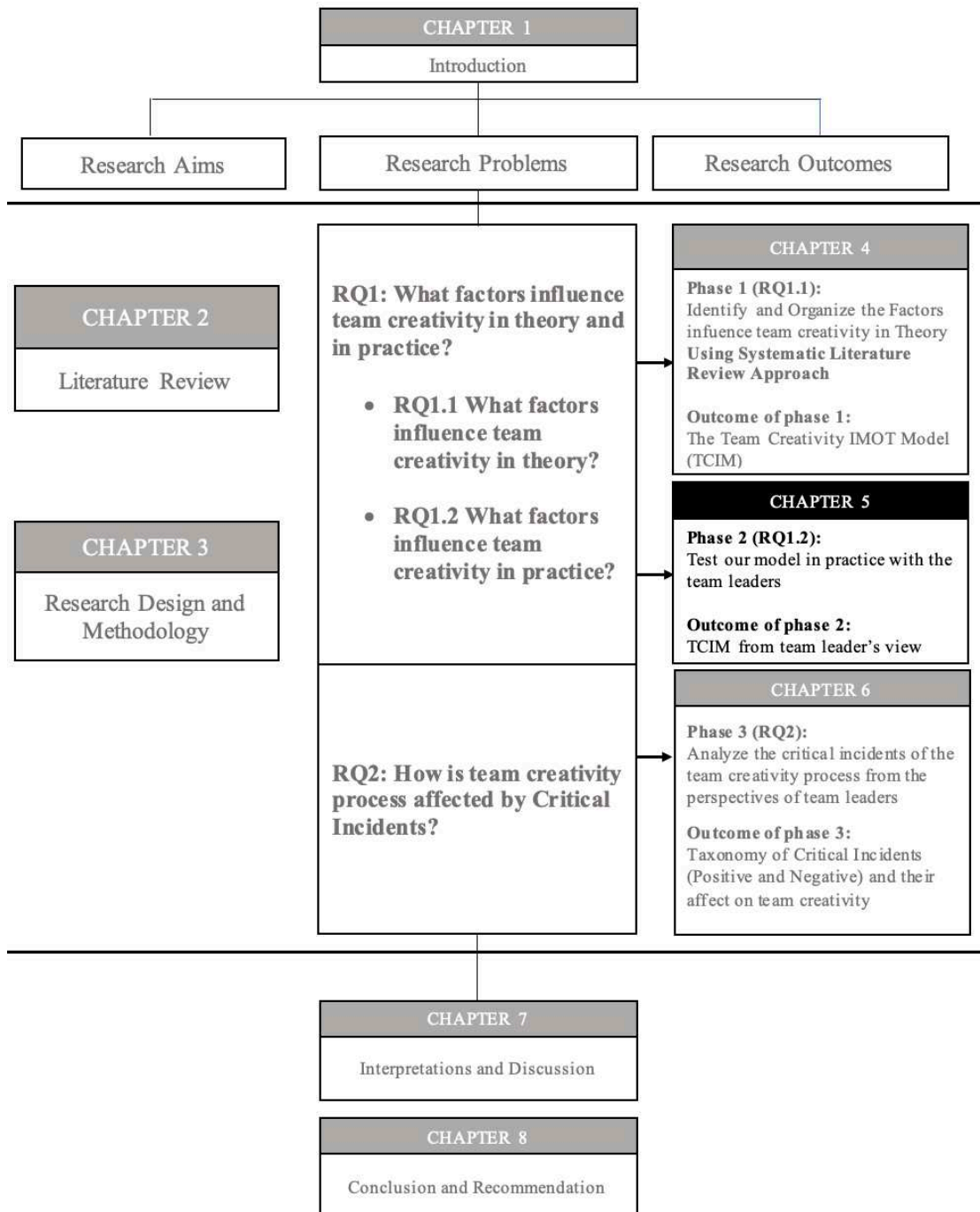
#### 5.1 Introduction

In this section, we review and analyze the data collected for the Research Question (RQ1.2). The data was gathered using an embedded mixed-method approach that included both mainly qualitative (interview) and quantitative (Seven-Likert scale) methods.

To answer RQ1.1 on **what factors influence team creativity in Theory**, a Systematic Literature Review was applied to identify all dimensions and factors of team creativity in the literature. The results in this part cannot give a complete understanding of which factors influence team creativity, so the field inquiry must need to answer RQ1.2 on **what factors influence team creativity in Practice**. When referring to "**influencing** team creativity," this research discusses the positive and negative factors that have been studied. This step was a simple embedded mixed method. The first part was a qualitative interview to explore the factors that influence team creativity (in both positive and negative factors), then presented the ones perceived as most important by the practitioners; in addition, the 7-Likert scale questionnaire was used to ensure they aligned with qualitative interview results.

In this chapter, we present the findings of the research question as follows:

**Research Question 1.2:** What factors influence team creativity **in Practice**?



## 5.2 Pilot study

We presented the findings from a pilot study conducted as a preliminary exploration of factors that influence team creativity. The pilot study aimed to provide initial insights into the research topic and inform the development of the main study. By conducting this pilot study, we attempted to refine our research design, assess the feasibility of data collection methods, check if the factors can fit into the Team Creativity IMOT categories, and gain a preliminary understanding of the relationships between key factors. The focus of this study was to examine factors that influence team creativity, both positively and negatively. Understanding these factors is essential for organizations seeking to foster creative teams and enhance innovation. By examining the factors that influence team creativity, we aimed to contribute to the existing body of knowledge on this topic and provide practical recommendations for organizations aiming to improve team performance.

Therefore, this pilot study used an embedded mixed-methods approach to gather data from a small sample of team leaders who represented their team in a work setting. The key findings of the pilot study were presented. It started by providing an overview of the sample characteristics, followed by a discussion of the most factors influencing team creativity from IMOT categories. Additionally, we discussed the preliminary insights gained from the pilot study and how they informed the refinement of this research design and data collection methods for the main study.

A small sample scale of interview participants was selected in this research. Three participants attended the pilot interview. The following table shows the information of pilot interview participants.



**Table 5.1***Information of pilot participants*

Pilot	Job title	Year of exp	Nationality	Team position	Team size	Type of team	Type of company
Amadeus	Head of marketing	5	Swedish	Team leader	5	Marketing team	Digital marketing
Api	Digital manager	9	Thai		6	Digital campaign team	FMCG
Japan	IP and licensing manager	5	Thai		6	University project team	University

### 5.2.1 Pilot results

The results factors can be fitted into the Team Creativity IMOT categories both enhancing and hindering factors.

#### 5.2.1.1 INPUTS Category (Positive/Enhance factors)

- **Team Composition**

Based on interview findings, pilot participants perceived team composition as the most significant factor influencing team creativity. This is composed of good team composition, team diversity, and goal orientation.

The example of pilot responses on good team composition included:

*“These six of people I think are suited to seven or eight brands that we are taking care of because, in each campaign, we may take around one week to complete all of this. So, this for the composition, I think, is suited to be right now. But if we can have another person who can help the data team, we can get the data faster and then the timeline may be shorter and shorter.”* By Api

Good team composition is what the pilot response believed that their team had a suitable composition for the project. Moreover, adding new members to join the team can bring in new and diverse perspectives, leading to the generation of novel ideas.

*“I think you need this. Kind of inserts now and then of kind of in this case, the new people joining to develop everything that we do as a team further. Otherwise, we will at one point just get stuck with what we are doing and then we're comfortable with that. And then we don't have different perspectives. That's because that's really one thing that I see when we do hire new people, right, we do get new perspectives on how we can do things, and normally that's not always implemented as it was done before, but there's something new coming out of that.”* By Amadeus

In the pilot responses, team diversity was defined as the variety of team members' expertise. Additionally, they functioned as a cross-functional team. The example of pilot responses on Team diversity included:

*“Because we come from very different, I think, different organizations and different types of working ...and because this person has the technical or the expert in different fields so that so worked together, come up with the new novel things also.”* By Japan

*“We are a team that we're working and really cross together.”* By Api

The example of pilot responses on Goal orientation included:

*“...that we only focus on the goal. We focused on the goal, but we do not focus on the journey to go to the goal...”* By Japan

- **Team leadership**

Team leadership was also perceived by the pilot responses as the top factor influencing team creativity. Having the support of a good leader or top management has always been essential for promoting team creativity:

*“Because if I refer to my boss, she's taking care of the royalty reward. And she was thinking about the big picture, not just only to create, campaign or find data, but she was thinking about the loyalty program and the whole process... not only support, but she sometimes you also ask if it all the campaign still in time or not? Do you need me to hold this campaign first? She will, thinking about the team. Not only that, we have seven brands. So, seven campaigns in a week, for example, but we can have too much workload. She will take taking care of it, but not too much workload. But we can deliver the work to the seven brands and they're happy to have us like the collaborative team working together.”*

By Api

- **Size of team**

Amadeus has commented on the importance of larger team which should be split into smaller teams as:

*“When you have a smaller team, you create normally stronger bonds with everyone... In a larger team, you have to create these clear, also smaller teams within the team to take care of certain tasks because sometimes it's just too many.”* By Amadeus

- **Company culture**

Company culture, Project ownership and Task interdependence were perceived by the pilot responses as the less factor influencing team creativity (frequency = 1). However, having a positive culture where everyone can freely share their ideas without fear of judgment was crucial for a pilot response. This can help foster creativity in a team:

*“I think the most important thing is it's the culture that is being set in in the company. You can have whatever sophisticated tools you want; you can have whatever. These are also maybe shorter initiatives or activities, or I don't believe in that. I believe in a complete culture in the company that is positive and that makes people feel comfortable...There has to be a culture where everyone is free to share their ideas without judgment. I feel like many times in, I feel it in our company as well, and sometimes there are people are scared of voicing their opinions, expressing their ideas, etc. That doesn't lead to any creativity at all.*

*...culture is probably the most important thing, and because that's what culture in the team, but also a wider culture in the company, for example, so a good and. Positive culture at, at all levels that encourages creativity.”* By Amadeus

- **Project ownership**

The pilot responses were also highlighted the importance of ownership and task interdependence as:

*“...But what the team did differently is that. They really took ownership of the project. That's also something that I as a manager feel like when you give complete ownership to someone for a specific project or for a bigger part of a task...”* By Amadeus

- **Task interdependence**

*“...And, for example, is someone in the data team cannot do like don't have the time to export some data. They come back to my team that asked for help, for example. Could you please run the SQL or whatever tool to export the data? Can you help them? I will check with my team that is if they have some free time*

*or not. And then we go to help the team. So, we help to get the two complete one on the job that we should complete, not just only we looked at, oh no, it's the data side that I should complete. They should manage the work and complete it. It's not our world. No, we don't think about that. We think about how we can correlate the work. Sometimes it's not. It's not my job to ask for that. It's not my job, for sure. But when we do, we do because we work as a team.”* By Api

#### **5.2.1.2 MEDIATORS Category (Positive/Enhance factors)**

- **Team Creative Process**

According to pilot results, the team creative process was found to be the most important factor that affects team creativity, as reported by pilot participants. This process includes idea-generation meetings, scrum meetings, and competitor research. The pilot often called an idea generation meeting as a brainstorming meeting, which is currently used by their team. The example of pilot responses on Idea generation meetings included:

*“We do not have a lot of structures in place. I would say that the few structures that we do have in place are just meeting structures and what kind of meetings we have. So, when it is a project that involves two or more people, we always have a kickoff meeting, and then we normally try to follow that up. So that's just to give the first debrief of what we want to achieve. And then normally we have a second meeting where we get together more. Normally we classify it as a brainstorming meeting where we are currently using.”* By Amadeus

*“I think the whole picture, right? So, we start to have a design thinking or creative initiative campaign like this. First, we have an internal meeting team, and we think we do meeting in our campaign in the yellow side I want to say that this is the campaign management team and in the green side, we call the data science and team. These two kinds of took of yellow and green, have two meeting together and discussed what kind of campaign we will create.”* By Api

Furthermore, the statement "...meeting together and discussing the type of campaign we will create" by Api suggests that it was an idea generation meeting.

As suggested by Japan, a scrum meeting was used in her team as a team creative process:

*“...scrum meeting. We somehow wrap up each other 15 minutes every day, I think this is very powerful, but maybe not 50 minutes, maybe less than that. But everyone discusses the problem, and we try to solve it at the end of the day and not let the problem so long until the next meeting.”* By Japan

The process of competitor analysis or research was viewed as a creative process among the team. The response from the pilot regarding Research on competitors:

*“We do have a maybe every two weeks we do a competitor analysis that we will pick up what kind of our competitor and the brand listen to us to be our benchmark... We study how the other competitor does for this kind of campaign or data that we get. What can we do? We drive the first campaign; we drive a second campaign, how we can motivate them to come to our member and create an engagement campaign in another section... Everyone has to see the competitor and come back and talk together. At that session, we will discuss quite a lot after we show what work we see in competitors.”* By Api

- **Psychological Safety**

Psychological safety was found to be the second most important factor that affects team creativity:

*“There has to be a culture where everyone is free to share their ideas without judgment. I feel like many times in, I feel it in our company as well, and sometimes there is people are scared of voicing their opinions, expressing their ideas, etc. and. That doesn't lead to any creativity at all.”* By Amadeus

- **Communication**

Communication was also perceived by the pilot responses as the top factor influencing team creativity. Effective communication within a team is crucial for expressing ideas clearly, ensuring understanding, and building upon them. This was emphasized by the pilot's response as the following example:

*“One thing I think that it's. Uh. Creativity as a group is all about communication. And if you can't. Communicate your ideas properly to others or express your ideas to others so that they understand it and so that they can then interpret that and maybe build on that, and then there's a new idea coming from that right, and then that is put back on the table, basically in a discussion or in or if we are working together on something online where everyone is contributing, right? ... I think the communication aspect is probably more important then.”*

By Amadeus

### 5.2.1.3 TIME Category (Positive/Enhance factors)

- **Timeframe**

From pilot results, Timeframe was found to be the most important factor that affects team creativity, as reported by pilot participants.

*“There has to be enough time in order to... that’s for four projects because it’s all based on goal and what has to be achieved within this... Sometimes it works but there has to be enough time, but there also has to be a timeline.”* By Amadeus

- **Time for experiment**

Amadeus also suggest that *“...you need to allow time for creative projects to happen... Then you let people think about it for a few days or whatever in internally. And I also promote people sharing their ideas during this time because that will spark new ideas from others.”* As Time for an experiment.

### 5.2.1.4 INPUTS Category (Negative/Hinder factors)

Additionally, the pilot results revealed the negative/hindering factors that can potentially fit into Team Creativity IMOT categories as the following:

- **Poor leadership**

According to interview findings, the pilot participants identified Poor leadership as the main factor that hinders team creativity. The examples included:

*“I think the thing is this project was not successful because the team lead did not decide things... Not lead enough. Yes. And we just decide whatever we think is good. But sometimes we're not good because we do not have more experience than him right? But he did not decide. But then he let us decide. And the thing*



*is. We trust the director, but the director of not decide thing, and nearly the end of the project the trust may be reduced and when is reduced is linked to the performance of work whole team also.”* By Japan

*“I would say, yeah, so leadership that is more. That criticizes more than it. It's positive, it's something that really. Really blocks creativity and really blocks you to. Share that second idea that you have when you think you have a great idea, when you think you, you, you come up with something new that you want to test or that you want to try, but you don't put it on the table because you're afraid of being shut down, basically.”* By Amadeus

- **Larger team size**

One of the main blocks to team creativity is having a larger team size, which can lead to decreased creativity. For example:

*“I've also experienced my team was actually 10 people, a few months ago, actually, so I've experienced a 10 people team and a five-people team. So, what I felt when the team was larger is that when we had team meetings, etc., or discussed new strategies, there was actually less creativity or less ideas.”*

By Amadeus

*“...it's the size of the team should be not big not too large or not so big team is so big team. Everyone cannot share the idea and maybe they do not confident or share ideas if there is a very big team.”* By Japan

- **Contextual constraints and hierarchy culture in Thailand**

There were some negative factors related to contextual constraints and hierarchy culture in Thailand:

*“...there are more things and try to search thing and apply in Thailand because Thailand has a different context than other countries”* By Japan

*“...when it comes to team composition and culture here in Thailand, one thing that is very. I've had these discussions with some of my people sometimes when there's a new member coming to the team and one of the first questions they ask is, is this person above me in the hierarchy, basically? Basically, what they're asking is, can I question this person? Can if I think something is wrong, kind of, can I say it out loud, or should I? Should I be quiet? Basically. And that is also one thing I think is very important to establish as a culture as well. We really have an open and transparent culture of people sharing their ideas and opinions... there are issues I see some I do see, of course, people when they come in and the like, how the hierarchy is in the company. When we have people from Europe coming in in internship positions, even in a meeting with a senior executive, they are not afraid to ask a question or they are not afraid to maybe say something or ask something or and I also feel that, of course, then in in the team as well. And I do think, yeah, culturally from there are some countries, Thailand is one example where we don't see this much...”* By Amadeus

### 5.2.1.5 MEDIATORS Category (Negative/Hinder factors)

- **Campaign from management level as commander**

If the management level takes control of the campaign as the commander, it can result in reduced productivity and creativity:

*“This type of campaign that I say is not so successful campaign. And the key point I want to go to the key point why I say that it's not a successful campaign. I think that it's from this campaign is from the management level. ...It's commander.”* By Api

### 5.2.1.6 TIME Category (Negative/Hinder factors)

- **High longevity**

High longevity sometimes can lower team creativity as following:

*“So, I do think that the trust part of it and feeling comfortable with team members is definitely important, but I think they're always. There should also be some changed. If you have the same team working for too long and you don't have input of new ideas or new members joining the team, adding new perspectives and an ideas, I think. The creativity will maybe go up and be stable over a certain amount of time, but maybe it will also decline at the end.”* By Amadeus

As mentioned by Japan, Team longevity could be good but High team longevity sometimes make it difficult to control the team:

*“But if we're know each other for long ok...we not only colleague, but we will be friends, but sometimes the mistake and some kind for forgive them. But*

*forgive it's good I'm not say not good. But sometimes if we very close together, it's hard to order.” By Japan*

- **Time pressure limits creativity**

Time pressure can hinder creativity in a team.

*“I think I'm so really the one thing that that I feel in the team is that time pressure is normally something that really blocks creativity and you normally when you have time pressure you, you take shortcuts, you do you, you do just things. Normally you take what you have done before and you slightly improve it in order for more disruptive things to happen, and really, when you really come up with something new and novel, you need to allow time for projects, and this is really something that normally I think in all teams, it's normally a lack of this.” By Amadeus*

In sum, when collecting responses from pilots, we noticed that their answers were based on general opinions. To improve this, we planned to ask interviewees about their experience in a specific creative project and what actually happened in that situation, whether it was successful or not.

As can be seen from the pilot results, the factors can potentially fit into the Team Creativity IMOT categories. The answers received provided a view of the most important factors of team creativity from team leaders. In addition, we can clearly see which factors, either positive or negative, influence team creativity.

### 5.3 Descriptive Findings

To ensure diversity, we conducted interviews with a variety of people from various industries for the primary study. For the interview, it was recommended to have a sample size of 20 to 30 people (Creswell, 1998). Thus, we conducted interviews with 33 people and reached saturation. The following Table 5.2 shows the demographics of the research participants.

**Table 5.2**

*The demographic of research participants (Team leaders and their teams)*

Variable	Label	Total (N = 33)
<b>Gender</b>	Male	22
	Female	11
<b>Size of team</b>	0-5	9
	6-10	19
	11-15	1
	16-20	2
	21+	2
<b>Type of team</b>	Ad-hoc	8
	Stable	25
<b>Team leader Years of experience</b>	0-10	9
	11-20	15
	21-30	6
	31-40	3
<b>Team longevity</b>	6-12 months	6
	1-5 years	17
	6-10 years	6
	10 years +	4

There were 33 leaders representing 33 teams from 24 companies in various industries, including the creative industry and other industries such as engineering, FMCG, energy, food, etc. There are 23 Thai and 10 Non-Thai nationalities (British, Australian, American, Canadian, Swedish, and Netherlands). The average size of teams was 6-10 people, and there were Ad-hoc (8 teams) and Stable (25 teams). The study included a variety of functions and teams, as shown in Table 5.3

**Table 5.3***The study teams in this research*

<b>Creative Teams</b>	
<b>Type of team</b>	<b>No. of team</b>
Digital agencies	4
Designer	3
Architecture	2
Software development	2
Marketing	2
UX/UI	1
Video Games	1
Innovation	1
<b>Other Teams</b>	
<b>Type of team</b>	<b>No. of team</b>
R&D	5
Engineering	3
Knowledge management (KM)	2
Strategy team	1
University project team	1
Warehouse	1
Business development and Marketing	1
Management team	1
Production team	1
Innovation	1

## 5.4 Qualitative findings

### 5.4.1 Perception of Team Creativity

The definitions of team creativity were revealed through interviews with the participants. Twenty-one team leaders (21 out of 33 interviewees) shared their definitions and perceptions of team creativity. When team leaders defined team creativity, they considered four key dimensions. These dimensions were aligned with Literature Review, which included the following:

- Developing novel and useful ideas, products, or performances through a group of people
- Collaboration, coordination, and interaction
- Combined individual creativity

- Group process/Creative process

Additionally, the interviewees added these dimensions when they referred to team creativity:

- Make difficult things easy and use resources efficiently
- Shared a common goal of being united
- Empathy

Table 5.4

*Definitions of team creativity from the interviewees (21 out of 33)*

Name	Definitions	Combined Individual Creativity	Group process/ Creative process	Collaboration/ Coordination/ Interaction	Develop novel and useful ideas or product or performance (by group of people)
Amadeus	When a group of people collaborates to come up with new and innovative ideas or solutions by bringing together their unique perspectives and skills, it heavily relies on trust, mutual respect, and a culture that encourages creativity.	✓		✓	✓
Anthony	In other words, as a team, solving problems and/or having new ideas on projects we were working on. And by the way, team creativity is only possible with teams that are working in great harmony, focusing on the subject and being able to communicate and listen to each other without diverting from the required end result.	✓		✓	✓
Ben	Team Creativity can only exist in an inspiring and collaborative environment. For creativity to thrive, each member of the team must feel empowered to speak their ideas and receive encouragement and healthy debate in response. Equally, each member of the team must be willing to speak up and share their ideas and inspiration with others. This all leads to the most important factor in any creative exercise - <b>EMPATHY</b> . If you don't have empathy, you cannot be creative. If you are not connected to the task or your team emotionally, you will never find inspiration in it and never produce anything creative.	✓		✓	✓
Chu	A creative team is a team where all members <b>share a common goal to be united</b> that will make their organization the most beneficial.	✓		✓	
Hadrien	Team Creativity is only possible if: - The team lead and team members are aware of skills, roles and responsibilities and areas of expertise of each other. - Members of your creative team have mutual respect and know each others well enough (because they have worked together on projects) - Work environment values curiosity and exploration aside pure delivery - Need for space and time to run trial and error, prototyping and tests - Discussions need to be open (no hierarchy in ideas but hierarchy in responsibilities) - Cross-pollination should happen in and out of office and working hours (whatever you see, hear, read is a potential source of inspiration). Don't forget to share! (lunch and learn, go grab a coffee, add to the team's reference library, ...) - Top creative management and team leads need to remove the 5 Fs: fear, failure, fallacious, fight, friction. - Top creative management needs to mentor, nurture and protect the teams from the other potential inference from other services - Don't forget to have fun!	✓		✓	✓



Name	Definitions	Combined Individual Creativity	Group process/ Creative process	Collaboration/ Coordination/ Interaction	Develop novel and useful ideas or product or performance (by group of people)
J	Creativity focuses on some tasks that can be done alone, but that job could have been done better If working together as a team. Because we have worked as a team will help make that work more efficient as we share knowledge, experience, and creativity that we have with the team.	✓			✓
Japan	if the teams are good, it will make us prosper and be creative. If the teams are bad, it will bring us down, we can't think of ideas, and the work won't work.				✓
Kanongdech	A creative team is a team with ideas to improve work. <b>Make difficult things easy and use resources efficiently, especially time resources.</b> It's a team that comes up with new ideas. so that humans can live more comfortably.				✓
Ken	Inventing, researching, and creating a product is true that it cannot be created by one person. The team will get a good product. So I recommended that product research and development must work as a team It will be much more efficient.	✓			✓
Liam	"Team Creativity" as an overall term, to me, means the collective willingness for a team to ideate, present, and execute new ideas. This does not have to be limited to a Creative team, but rather could be a measurement or interpretation of any team as a whole. A team that is unwilling to present new ideas or propose new paths and processes could be imagined as a group that is low in "Team Creativity." Conversely, if people are actively coming together to change the status quo (looking to improve) then you could imagine them to have high "Team Creativity."	✓			✓
Matthew	Team creativity is partially a collaborative process, driven by a lead or director with an initial vision that lays the foundation for concept or idea. Team members then contribute to that concept brief as guidelines/restrictions to further develop and strengthen the concept in a controlled environment.  Think of it as the creative director plants the seed > Team members contribute to create variations (branches) > reviews combine concepts creating more ideas/directions (flowers) > prioritization of all ideas then take place based on creative objective and strategies	✓	✓	✓	✓
Moshi	My creative team finds new ideas, shares them by the department. like mkt. It may be a matter of content, making new viral, how to get customers to know us, ideas for making various clips.				✓

Name	Definitions	Combined Individual Creativity	Group process/ Creative process	Collaboration/ Coordination/ Interaction	Develop novel and useful ideas or product or performance (by group of people)
Nine	Creativity that comes from the team It is an opinion that each member of the team comes together to brainstorm together. Every opinion that comes out will be filtered from knowledge, experience, and various perspectives that each person on the team has, which will be diverse and can be used according to the intended purpose.	✓	✓		
Nipaporn	Team creativity: Working together to learn jointly, think analytically, and create new works to improve work according to the set goals.			✓	✓
Nui	To me, team creativity is more to the team that come from diverse backgrounds and mindset. When they are together, we can stimulate them to create more within the team.	✓			✓
Nut	Team creativity in my opinion A team where everyone participates in helping each other think and work together with the same goals and aims. Willing to listen and open to ideas from people on the team. By decision or conclusion from agreement Together, and everyone accepts that decision.	✓		✓	✓
Ong	Team creativity is something that cannot create by one alone... Group activity, Brainstorming, finding the best idea in a current situation. So, team creativity could be continued and not happen in one time, TC could happen many times that lead to be creative. Team creativity includes Team activities or Brainstorming to spark creativity.	✓	✓	✓	✓
Pawel	In my opinion, "Team Creativity" defines as the ability of a team to create new ideas/content collectively (rather than individually).  The perfect example of this in practice is when jazz musicians improvise over a jazz standard. They're able to do this because 1) there's sufficient trust in each other's technical and musical skill; 2) the jazz standard over which they're improvising provides enough of a framework on top of which creativity can be built with relative freedom with the knowledge that it will 'hold together'; and 3) all the musicians constantly listen and respond to what the others are doing - this is arguably the most important aspect as it's specifically what allows the musicians to create something that's more than just the 'sum of the parts' and the feeling musicians get when this happens is what makes jamming with other musicians so addictive. I believe the same 3 criteria (trust, an appropriate framework, and communication/agility) are essential for proper team creativity in any discipline.			✓	✓

Name	Definitions	Combined Individual Creativity	Group process/ Creative process	Collaboration/ Coordination/ Interaction	Develop novel and useful ideas or product or performance (by group of people)
Pom	Teams that do activities or things together bring benefits to both the company and oneself			✓	✓
Scott	<p>Team creativity is generating novel and innovative ideas through collaboration and cooperation among a group of people. It involves meshing different perspectives, experiences, and expertise of individuals to develop a unique and creative output that would not have been possible if each person had worked alone.</p> <p>Team creativity can take many forms, from brainstorming sessions to design thinking workshops, and can involve various group size</p> <p>Team creativity can lead to more comprehensive and diverse ideas and it can enhance team cohesion, trust, and communication, leading to better teamwork and outcomes.</p>	✓	✓	✓	✓
Vivan	In my opinion, a creative team is when people on the same team, Whether it's a large corporate event Line level, department level, department level or in a project, large or small, cooperate in doing one thing. There is a transfer and exchange of knowledge. experience and skills (which may come from various fields) to jointly drive the development of new things problem-solving change for the better, or emerge as an innovation.	✓		✓	✓
	<b>Total</b>	<b>15/21</b>	<b>4/21</b>	<b>13/21</b>	<b>19/21</b>

Nineteen of the team leaders emphasized the significance of team creativity in developing original and useful ideas, products, or performances (by a group of people). They also mentioned team creativity as a combination of individual creativity (15 out of 21 team leaders) and collaboration and interaction among team members (13 out of 21 team leaders). Only 4 out of 21 team leaders mentioned team creativity as a Group process or Creative process.

### 5.4.2 Role of Creativity in a team project

Thirdly-three team leaders from 24 companies highlighted the role of creativity in their team projects as shown in Table 5.5

**Table 5.5**

*Role of creativity in team project*

<b>Role of creativity</b>	<b>Leaders (N=33)</b>
Innovation or new product that had never done before	11
Managing team to be creative	7
Creative brand communications	6
Problem-solving in novel ways	5
Creativity as doing something new and present new exp for client	1
Advertising campaign	1
Data Driven	1
Design packaging & process improvement	1
Experimentation	1

**(1 team leader mentioned both 2 roles of creativity as “Managing team to be creative” and “Creative brand communication”)**

Most of the interviewees mentioned creativity in their team project as bridging to innovation and creating new products that had never been done before:

*“What role does creative play to me? Honestly, to me, **creativity is the bridge to innovation**. So, if a client really wants to like to create something new, the only way of differentiating from everything is creative. So, and again, it usually comes back to the fundamentals and that is being curious and research.”*

By Matthew

*“Creativity is what our team does should have a big impact because what we do, we try to develop software or **whatever new things come out**.”* By Boy

Vivan also highlighted the role of creativity in her team as an innovation that should have at least intellectual property (IP) to confirm that the product is new to the world:

*“Most of them are **innovation**, so it must have at least an **IP** to confirm that it is a product that is new in the world, no one has ever seen anything before, and no one has done it before.”* By Vivan

The role of creativity in their team projects was not only about developing new innovative products but also about finding novel ways to solve problems:

*“I think the creativity may come sometimes, and **we try to find a solution and problem solving to that**. That's creation of the things, and we try to make it more easy. And I mean creativity, it is very hard to touch but the thing **we try to solve problems in a different way** because if we. If we thought this way, not work, we come back to brainstorm and do another way some kind like, maybe a bit of action research, we try and back kind of thing like that until in finish.”*

By Japan

In fact, some of the team leaders mentioned that managing the team's creativity was crucial for their projects.

*“So, I think the **best creativity comes out of people**. It's often not a formula. Yeah, yeah. It's **actually about people and their role**.”* By Scott

*“...But then I think **creativity is also really important when it comes to getting a group of people who are unfamiliar with new ways of working to get more comfortable**.”* By Gordon

In addition, Gordon also added to his point of creativity as meaningful collaboration:

*“If I were to say what is the core creative process that I use, **it's meaningful collaboration**. Meaning I think that the most creative. **Outcomes are when you're collaborating as a group and how you collaborate can change**. Maybe you collaborate in a workshop, maybe you collaborate in a prototyping*

*exercise, but it's bringing multiple people together, I think is core and you can call it design thinking or whatever, but I think it's about multiple people.”* By Gordon

Moreover, the importance of creativity in the team project was emphasized as a way to offer customers new experiences:

*“Both I and my partners think that if we are in this design industry, if we don't think, we don't use creativity and try to do something new, it's useless. To do it, it just becomes what he asks. Next, we're just helping to solve problems day by day, but with every program, we do, whether it's a house or a restaurant or a hotel. Set a goal that with all of these **we must try to offer new experiences**, try to present the style of the building, or do you have ideas for every project?...”*

By Nina

*“...Yeah. And so, we actually as a creative proposition to, to push the marketing and kind of add some value and **surprise to the customers**.”* By Matthew

Liam was mentioned also the creativity in his team project as the first experience to the customer or what is called creative brand communications:

*“...It's a big part. It's a big part of the overall business because it is the first thing. It's the **first experience the customer has when they interact with the brand**. Whether they come across an ad on Facebook or Instagram or they search up the store, Amazon or Shopee, or they go to the brand's website, the customer can only interact with the brand, at least in the online digital space. The only way they're interacting with the brand is through two things, through the artwork that my team does or that they're chatting with the customer service team. It's still the work is in-between. It's what draws people in and helps*

*communicate what the brand is and what they're selling. So for the creativity side, the team's produce is to determine how to make the brand's message relevant to the customer. So, it's a big part.*” By Liam

Furthermore, team leaders emphasized several ways in which creativity plays a role in team projects, including advertising campaign, data driven, experimentation, designing packaging and improving processes:

Ben also highlighted the role of “**creative agency**” in order to build advertising campaign. In addition Api stressed that “*It's taking that when we see the **Data driven** first and then we create a new campaign that quite interest so each one, then we got the result, the good results and this kind of three of these, we think about how we creative... then we can initiate create the personalized campaign and prove that the digital marketing campaign can help driving the sale to the brand. Then Brand happy.*” By Api

“*...But the role of creativity really comes in when we are **doing experiments**. So, we are driving and a lot of traffic, for example, to our websites, we are testing a lot of things. We're spending a lot of money to reach people. **So creativity really comes in when we are doing experiments because when we are doing experiments, we have to be very clear with testing different things.***”

By Amadeus

“*Creativity may be **in terms of packaging, in terms of design, in terms of environmental friendly or whether creativity in terms of process improvement can improve new processes to achieve better results and not creative work like only, but it is a matter of modifying work, working process.***” By Nut

### 5.4.3 Key findings on the Factors that influence Team Creativity

The interview results identified the main sources of the project:

- the projects come from Project comes from the top-down policy or top management. For example, “*Normally, all of these projects come from **either situation that we identify, or it comes from our executives and top management.***” By Amadeus,
- the projects come from Project comes from problems from the work site or pain points of clients. For example, “*So basically, everything for us **starts with a brief from the client.** So, a client approaches us and they tell us they have a design or **branding problem that they need us to solve.***” By Ben

The frequency of codes presented which factors are perceived as most important by team leaders. There are a total of 383 codes that represent 1106 quotations or verbatim statements. Most factors that positively influence team creativity as perceived by team leaders, were organized following Team Creativity IMOT Model (TCIM) (184 codes). Additionally, factors that negatively influence team creativity as perceived by team leaders, were also organized following the TCIM model (75 codes). Some factors mentioned in the code segments (frequency = 1) have been considered less important for the team leaders. Table 5.6, 5.7, 5.8 show the frequency of factors that positively influence team creativity mentioned during interviews.



**Table 5.6**

*Frequency of factors that positively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **INPUTS**)*

<b>Frequency of factors that influence team creativity (INPUTS)</b>		
<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Team Composition	113	29
Team Leadership	51	22
Company Culture	17	11
Understand constraints	14	6
Reward Systems	12	6
Good Structure	10	9
Size of team	7	4
Gate Keeper, Time Keeper	4	3
Project Ownership	3	2
Interdependence	1	1
Working Spaces for creative experiment	1	1

**Table 5.7**

*Frequency of factors that positively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **MEDIATORS**)*

<b>Frequency of factors that influence team creativity (MEDIATORS)</b>		
<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Team Creative Process	113	28
Motivation	55	22
Psychological Safety	31	17
Synergy/Collaboration	27	11
Team Learning	25	20
Communication	24	14
Top Management Support	21	12
External Interactions	15	11
Relationship with client	13	7
Cohesion	10	7
Shared Mental Models	10	6
Creative Autonomy	9	5
Trust	9	7
Apply New Technology	5	3
Coworker Support	2	2

**Table 5.8**

*Frequency of factors that positively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **TIME**)*

<b>Frequency of factors that influence team creativity (TIME)</b>		
<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Time Pressure	29	15
High Longevity	2	2

#### **5.4.4 INPUTS Category (Positive/Enhance)**

##### **5.4.4.1 Team Composition**

Team leaders have identified team composition as the most important category, which comprises subcategories such as team diversity, good team composition, individual creativity, and goal orientation (Table 5.9).

**Table 5.9**

*Frequency of factors that influence team creativity mentioned during interviews (Team composition)*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Team Diversity</b>	<b>57</b>	<b>24</b>
<b>Good Team Composition</b>	<b>44</b>	<b>21</b>
<b>Individual Creativity</b>	<b>14</b>	<b>5</b>
<b>Goal Orientation</b>	<b>4</b>	<b>2</b>

**(n=33)**

#### 5.4.4.1.1 Subcategory-level 1: Team Diversity

The subfactors of team diversity are resulted in 12 categories. There are examples of verbatim that can be found in Appendix C (Table C5, C6).

**Table 5.10**

*Frequency of factors that influence team creativity mentioned during interviews (Team diversity)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Team Diversity</b>	<b>57</b>	<b>24</b>
<b>Subcategory-level 2</b>		
Cross-functional team	16	9
Diversity of skills and know-how	13	9
Diversity of perspectives	7	5
Multidisciplinary team	7	2
Mixing experiences of team members	6	4
Cultural diversity	4	4
Mix of influences and backgrounds	4	3
Different personality	3	2
Bridge the gap of age and knowledge	1	1
Different ages	1	1
Different mindsets	1	1
Multitasking	1	1

(n=33)

These are some examples of verbatim that collected from the particular category. For instance,

- **Cross-functional team**

*“In order to ensure the success of our project, we need to involve all relevant front-line workers. Our project is a cross-functional team that involves many departments working together. We need to bring in not only subordinates but also various related agencies such as caregivers, warehouse purchase clerks, and suppliers to join our project.”* By Nipaporn

- **Multidisciplinary team**

*“...and this was borne out by **multi-discipline and multicultural people that we had together working on the team**. We had people from Russia, from Europe, from South America, from UK, from America, from Asia. We had a truly **multi-discipline team with different ages**.”* By Shane

- **Diversity of skills and know-how**

*It was the **diversity of our team abilities and our skills that meant** because we had skills in all these different areas, it was necessary that that team composition brought to the project and the task a wide variety of thinking, execution, detailing process thought.* By Shane

- **Mixing of influences and backgrounds**

*“I think a big stimulant was, I think the **varying backgrounds**. So, like at the time, yes. Our career director at the time South African gentleman that. If a Canadian, then retired and. Like very local ties and more like internationally educated Thai as well. **So having that mix of influences and backgrounds** I think really, really helped accelerate our understanding of the client and the brand and also understanding of how we translate that into the local market”* By Liam

#### 5.4.4.1.2 Subcategory-level 1: Good Team Composition

The subfactors of good team composition are resulted in 10 categories which shown in Table 5.11, The full examples of verbatim that can be found in Appendix C (Table C8).

**Table 5.11**

*Frequency of factors that influence team creativity mentioned during interviews (Good team composition)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Good Team Composition</b>	<b>44</b>	<b>21</b>
<b>Subcategory-level 2</b>		
Good refined team composition	14	11
We give right people to the right tasks	9	8
Personality, Get along well with each other	7	4
Openness team	4	4
I hired experts from certain fields to help	2	2
High potential and talented team members	1	1
Same generation	1	1
We are specialized in it	1	1
We see the strengths and weaknesses of each other	1	1
Wolfpack	1	1

(n=33)

These are some examples of verbatim that collected from the particular category. For instance,

- **Good refined team composition**

*“These six of people I think are suited to seven or eight brands that we are taking care of because in each campaign we may take around one week to complete all of this. So, in this for the composition, I think, is suited to be right now. But if we can have*

*another person who can help the data team, we can get the data faster and then the timeline may be shorter and shorter.”* By Api

- **Openness team**

One interesting point suggested by Mr. Chu that *“Let me define the word that the composition of the team in addition to the team must be **open-minded**. Each person in the team must have a character, not a **full glass of water** (openness team), so that diversity, which everyone will have at some point, is different, can be filled others to have more variety in a glass of water”*

- **High potential and talented team members**

*“I’m lucky to have a high potential and talented team, and it may be that our company has selected it, that is, it is a person with **high potential and ability combined with a friendly personality**. Get along well and the team is also specialized in different fields, resulting in a very new idea.”* By Pawinee

#### 5.4.4.1.3 Subcategory-level 1: Individual Creativity

The subfactors of individual creativity are resulted in 2 categories, shown in Table 5.12, It can be found in Appendix C (Table C9, C10).

**Table 5.12**

*Frequency of factors that influence team creativity mentioned during interviews (Individual creativity)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Individual Creativity</b>	<b>14</b>	<b>5</b>
<b>Subcategory-level 2</b>		
Individual creativity	13	5
People who face the problem they can think of creativity things	1	1

(n=33)

These are some examples of verbatim that collected from the particular category. For instance,

- **Individual creativity**

*“A team is creating and helping a team leader, **which is the innovator**. This is my experience that the reason why is that, for example, if you look at Thomas Alpha Edison, you read about him, do you read about his team members? No, no, no. Of course, he had a team with him that helped him to implement and realize his ideas as much as possible. **But the ideas and the creativity came from him and not from his Team.**”* By Anthony

- **People who face the problem they can think of creative things**

*“The time when we think, this is the person who can, the person who can think creativity like this, must be the **person that face the problem...**”* By Ekkachat

#### 5.4.4.1.4 Subcategory-level 1: Goal Orientation

The subfactor of goal orientation is shown in Table 5.13, followed by the examples of verbatim.

**Table 5.13**

*Frequency of factors that influence team creativity mentioned during interviews (Goal orientation)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Goal Orientation</b>	<b>4</b>	<b>2</b>
<b>Subcategory-level 2</b>		
Goal orientation	4	2

(n=33)

- **Goal orientation**

*“The first impulse comes from the **goal first**, that we have a goal that ... Oh, I want to earn only that much. Therefore, each person has thought before that, hey, when and what to do? In order to get achieve this, we must get the problem first before getting the target...”* By Nut

#### 5.4.4.2 Team Leadership

Team leaders have identified team leadership as the second most important category, which comprises subcategories such as leader effectiveness, good team leader, leadership styles, leader support, and strong personality of leader (Table 5.14).

**Table 5.14**

*Frequency of factors that influence team creativity mentioned during interviews (Team leadership)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leader Effectiveness</b>	<b>19</b>	<b>12</b>
<b>Good team leader</b>	<b>14</b>	<b>6</b>
<b>Leadership Styles</b>	<b>12</b>	<b>9</b>
<b>Leader Support</b>	<b>8</b>	<b>6</b>
<b>Strong personality of leader</b>	<b>3</b>	<b>3</b>

(n=33)

##### 5.4.4.2.1 Subcategory-level 1: Leader Effectiveness

The subfactors of leader effectiveness are shown in Table 5.15, followed by the examples of verbatim which can be found in Appendix C, Table C14, C15.



Table 5.15

*Frequency of factors that influence team creativity mentioned during interviews (Leader effectiveness)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leader Effectiveness</b>	<b>19</b>	<b>12</b>
<b>Subcategory-level 2</b>		
Leader must lead and guide team	9	4
Leader has clear vision and direction	4	4
Leader created good/safe environment for member expressing ideas	3	3
It has to lead by One leader as one captain on a ship	2	1
Leader teaches team members to think out of the box	2	1
I was able to lead the team b/c of my knowledge	1	1

These are some examples of verbatim of leader effectiveness, which can be found more in Appendix C, Table C15

- **Leader must lead and guide team**

*“Leader gives the guidance for the team. So yeah, like leadership is key. And if the leader doesn't have the experience or the particular interest or knowledge of the project, it won't be as successful as it could be.”* By Matthew

- **Leader has clear vision and direction**

*“I think it's the most important one. Team structure. Team leadership. Yes. So, this is where there's a collaboration between the producer, the game director and the lead designer and everything are **recognizing roles and responsibility, recognizing talent and of course, having a clear vision. If you have a vision, you can lead the team...**”*

By Hadrien

- **Leader created good/safe environment for member expressing ideas**

*“We have very similar management styles and we want to make sure that our team feels safe to experiment and push the boundaries and to make mistakes. Because if they don't, then you're leaving a lot of creativity on the table. You need to be able to feel like it's okay to be wrong if you want to try something new.”* By Liam

#### 5.4.4.2.2 Subcategory-level 1: Good team leader

The subfactor of good team leader is shown in Table 5.16, followed by the examples of verbatim which can be found in Appendix C, Table C17.

**Table 5.16**

*Frequency of factors that influence team creativity mentioned during interviews (Good team leader)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Good team leader</b>	<b>14</b>	<b>6</b>
<b>Subcategory-level 2</b>		
Good leadership	14	6

- **Good leadership**

*“...And then number two is, I think, how we facilitate. So, for me. Really **good**. Facilitation means I'm doing almost nothing if I'm if I'm there as a facilitator and I can sit in the back of the room. Drinking a cup of coffee while everybody else is working. That's the best result possible. Because and it's very counterintuitive because a lot of people, especially in my organization, management consultants. They think you need to be up there and you need to be leading everybody all the time telling them what to do. No, no, no, no. Do this. Do this better. Do this better. There's nothing worse to make people feel more intimidated by them, by telling them, no, no, no, no, no. You*

*need to do it like this. Right. So. But that requires structure. So you've got to have really good structure.*

*...And so the way I help people be creative is, is I'm genuinely there to tell them the things that you share with me. The ideas that you share are going to help me as a designer create something great. And I can show them that. I can actually say, Look, this thing you did in the workshop. Here it is. It doesn't it's not the same shape as what you started, but the things that you shared with me helped create this. This output.”* By Gordon

#### 5.4.4.2.3 Subcategory-level 1: Leadership Styles

The subfactors of leadership styles are resulted in 5 categories in Table 5.17.

**Table 5.17**

*Frequency of factors that influence team creativity mentioned during interviews (Leadership styles)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leadership Styles</b>	<b>12</b>	<b>9</b>
<b>Subcategory-level 2</b>		
Situation leader	6	5
Different leadership styles	2	2
Inspirational Leader	2	2
Clear identify leadership	1	1
Leading by example	1	1

(n=33)

There are some examples of verbatim for instance (Appendix C, Table C19),

- **Situation leader**

*“The structure of the team, the leadership of the team, I see it as old fashion. It is not, not important, I think that the leader of the team, **everyone is a leader, but a leader according to the situation** Can you imagine when you coach the team, when he lets him*

*do it, whether it's design thinking, crazy ideas, maybe for him to draw his friend's strengths, which in your workshop will have it, there will be one story that he learns what friends do best. When we mixes the team together, we will begin to notice. This friend is a good talker. This friend is a good PowerPoint maker. This friend is a negotiator. **So everyone is a leader in their own talent, so the situation that you lead them to.** OK, you're on the same team now, so the team that is set up here will meet each other **Situations that must bring each person out to match the situation, ...Who must be the leader, so I see that the importance of leadership of the team is a situation leader.**"* By Noi

- **Inspirational leader**

*"...this is on the leaders responsibility is to not only utilize and understand the strengths of their teams, but **also inspire the team. So a big part of the leader is to motivate the team through inspirational means and understanding their strengths, and that kind of motivates them to work harder and even like go overtime sometimes...**"* By Matthew

#### 5.4.4.2.4 Subcategory-level 1: Leader Support

The subfactors of leader support are shown in Table 5.18, followed by the examples of verbatim.

**Table 5.18**

*Frequency of sub-factors that influence team creativity mentioned during interviews (Leader support)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leader Support</b>	<b>8</b>	<b>6</b>
<b>Subcategory-level 2</b>		
Team can come to see leaders whenever they need	4	3
Our Leader supports workload of the team	3	3
Leader should focus on positive and encouraging members	1	1

(n=33)

- **Team can come to see leaders whenever they need**

*“Yeah, well, definitely this one is super important if you know, it's a place where you can come and knock on the door with the three of us, the three leads are sitting and you can come and ask a question. Ask for a leave because you don't feel good. Ask for an extra, a hard drive because you need more space, or just ask a question because you don't get the vision. Everything that's super important.”* By Hadrien

- **Our leader supports workload of the team**

*“Not only support, but she sometimes you also ask that if it all the campaign still in the time or not? Do you need me to hold this campaign first? She will, thinking about the team. Not only that, but we also have seven brands. So, seven campaign in a week,*

*for example, but we can have too much workload. **She will take taking care of it, but not too much workload. But we can deliver the work to the seven brands and they're happy to have us like the collaborate team working together.***” By Api

- **Leader should focus on positive and encouraging members**

*“The communication when it comes to judging ideas and judging new initiatives is something from, I think from **a leadership position should always be encouraging, so you should always focus on.** What was it that this person wanted to achieve with this? They don't put out an idea or a new initiative because. Just because they do it because they think it's an improvement of what is currently being done, **so you should always focus then on the positive aspects rather than just shutting ideas down because that's. It's not just it's a negative spiral that just blocks everything that comes after that.**”* By Amadeus

#### 5.4.4.2.5 Subcategory-level 1: Strong personality of leader

The subfactors of Strong personality of leader are shown in Table 5.19, followed by some examples of verbatim, the full examples can be found in Appendix C, Table C23.

**Table 5.19**

*Frequency of sub-factors that influence team creativity mentioned during interviews (Strong personality of leader)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Strong personality of leader</b>	<b>3</b>	<b>3</b>
<b>Subcategory-level 2</b>		
Leader get along with team members	1	1
Leader who compromise	1	1
Mix and match personality of facilitator	1	1
Problem solver type of leader	1	1

(n=33)

- **Leader gets along with team members**

*“I rather focus on leaders. Leaders must be called to win the hearts of the youngsters in the team as well and must have knowledge in solving problems. You will not know everything, must know how to take things around that the team proposes, so it must have a decision, when the team has any problems, feel like you can run to this person, no matter Whether it's a matter of work, personal matters...”* By Jay

- **Mix and match personality of facilitator**

*“We have a duty to be a facilitator, so we must have the character of a person who can be called mix and match, or people call it pull points, strengths. each one come together.”* By Aof

#### 5.4.4.3 Company Culture

The subfactors of Company culture are shown in Table 5.20, followed by some examples of verbatim. The full examples can be found in Appendix C, Table C25.

**Table 5.20**

*Frequency of sub-factors that influence team creativity mentioned during interviews*

*(Company Culture)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Company Culture</b>	<b>20</b>	<b>14</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Positive culture at company	7	5
Culture that involves in KPI	3	2
Strong sense of organization	2	2
Thai culture like brothers and sisters	2	2
Coaching culture	1	1
Think out of the box	1	1
We were flexible for everything	1	1

(n=33)

- **Positive culture at company**

*“I think the most important thing is it's the culture that that is being set in in the company. You can. You can have whatever sophisticated tools you want; you can have whatever. These are also maybe shorter initiatives or activities, or I don't believe in that, I believe in a complete culture in the company that is that is positive and that makes people feel comfortable.”* By Amadeus

- **Thai culture like brothers and sisters**



*“There is, because with Company's own things, this style in the work of the organization's culture is actually quite helpful, like brothers and sisters.”* By Nut

#### 5.4.4.4 Understand Constraints

The subfactors of Understand Constraints are shown in Table 5.21, followed by some examples of verbatim. The full examples can be found in Appendix C, Table C27.

**Table 5.21**

*Frequency of factors that influence team creativity mentioned during interviews (Understand constraints)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Understand Constraints</b>	<b>14</b>	<b>5</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Understand fixed limitation and think beyond the limit	5	4
Constraints	5	2
A big challenge is we were restricted by legislation, rules Gov	5	1

(n=33)

- **Understand fixed limitation and think beyond the limit**

*“So. I guess to sum up that creative process or methodology, it's **understanding that there have to be certain fixed elements** on one side, some **fixed restraints**, and on the other side allowing designers to go or **think beyond the restraints to come up with new ideas**. Then they can push into those restraints. So it's that balance between restriction and freedom.”* By Pawel

- **Constraints**

*“The **constraints**, they said. So, it was it was a painful moment because cash flow was going low, new investor was coming in. So, there was good news. But then suddenly to say, we're going to invest and support you. But these are the conditions.*

***Conditions equals constraints, right?** And we were a solely independent video game studio and suddenly we need to beg for more money. And with this comes the limitations and we rejected it and then we embraced it. So, **I think constraints framing, right, when you frame something, when you limit yourself in this box. You realize you actually have way more space than you thought. So, constraints forced us. To re-imagine...**”* By Hadrien

#### 5.4.4.5 Reward Systems

The subfactors of Reward Systems is shown in Table 5.22, followed by the examples of verbatim which can be found more in Appendix C, Table C29.

**Table 5.22**

*Frequency of factors that influence team creativity mentioned during interviews (Reward systems)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Reward Systems</b>	<b>12</b>	<b>6</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Innovation award	12	6

(n=33)

- **Innovation award**

*“**There will be a company innovation award contest, that is, every employee in the organization can submit whatever you think will be creative, and it can bring about***

*business benefits in the future. We are able to submit an idea to enter the innovation award contest.”* By Vivan

#### 5.4.4.6 Good Structure

The subfactors of Good Structure are shown in Table 5.23, followed by some examples of verbatim. The full examples can be found in Appendix C, Table C31.

**Table 5.23**

*Frequency of factors that influence team creativity mentioned during interviews (Good structure)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Good Structure</b>	<b>10</b>	<b>9</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Flat structure	3	3
Have a good process framework	3	3
Brand truths	1	1
Good governance and stable	1	1
Not flat structure	1	1
Set the condition	1	1

(n=33)

- **Have a good process framework**

*“We had and we always worked around fairly well-defined structures of ensuring that there is a strong and understandable strategy in place. First, getting a strong creative brief that was either written or instigated by the client, then supplemented by the agency that I was working with and representing. And then we would then take that on and turn that into internal briefs for the different purposes or the different needs of the brand. If the brand came to us with a wider remit to say we need some ideas for our business or we need to engage better with our customers, we would then look at different briefs depending on, again, what we thought through the strategic*

*rigor that we would put behind the process. We would then start to look at what do we think these needs? It needs. Business to business. It needs trade, communications. It needs consumer. We'd need to be of retail. We need to do direct communications. We need to do digital communications and so on and so on. **So, the process was fairly well defined** always, and it was always based around brand truths that we had to find or that we had to uncover or that we had to interrogate the client about. Because sometimes you will get clients who come to you who don't know what they want or who haven't done their own homework on themselves. And we would often be asked to do that first to get a good grounding, a good foundation to then take on and turn into creative ideas and creative expressions.” By Shane*

#### 5.4.4.7 Size of team

The subfactors of Size of team are shown in Table 5.24, followed by some examples of verbatim, can be found more in Appendix C, Table C33.

**Table 5.24**

*Frequency of factors that influence team creativity mentioned during interviews (Size of team)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Size of team</b>	<b>7</b>	<b>4</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Divided Big team into small teams	3	2
Small team can collect all the points of view from everyone	3	2
Smaller team, Stronger bonds with everyone	1	1

(n=33)

- **Small team can collect all the points of view from everyone**

*“The composition of the development team, is to **keep small first, that is, not allow more than 10 people**, the reason is because if more than this, it may not be able to control the quality of generating idea, It's more difficult, so I want to keep a small team mainly a scrum team, so I think that **keep small** are quite important to team composition.”* By Boy

#### 5.4.4.8 Gate Keeper, Time Keeper

The subfactors of Gate Keeper, Time Keeper is shown in Table 5.25, followed by the examples of verbatim.

**Table 5.25**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Gate keeper, Time keeper)*

Positive/Enhance Category	Frequency	Leaders (N=33)
Gate Keeper, Time Keeper	4	3
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Gate Keeper, Time Keeper	4	3

- **Gate Keeper, Time Keeper**

*“The producer is the one keeping us in check that we're spending the money that we're delivering on time. We're following the schedule that we have, our agile progress and we can deliver and everything. I don't talk about this that much because I don't really like it, but the truth is that yeah, and I would like maybe to add this to the previous project. The successful one is that when the producer does a tremendous job and the project manager does a tremendous job, then it's everything is so much easier because*

*we as a creative team, the design team can focus on our job instead of having to think about are we on time or are we delayed? Are we spending too much? So, this is a high level of collaboration.*

*It's good to have someone that is the gatekeeper, that is the time keeper, budget keeper. And we are responsible for the experience, for the feeling, for the symbolism, for all this stuff..."* By Hadrien

#### 5.4.4.9 Project Ownership

The subfactor of Project ownership is shown in Table 5.26, followed by the examples of verbatim.

Table 5.26

*Frequency of factors that influence team creativity mentioned during interviews (Project ownership)*

Positive/Enhance Category	Frequency	Leaders (N=33)
Project Ownership	3	2
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Project ownership	3	2

- **Project ownership**

*"But what the team did differently is that. They really took ownership of the project. That's also something that me as a manager feel like when you **when you give the complete ownership to someone for a specific project or for a bigger part of a task...** When you have clear. Also, responsibilities of what everyone is supposed to provide then. There are clear rules of what they should actually do, and then they know that they can be creative within that space."* By Amadeus

#### 5.4.4.10 Interdependence

The subfactors of Interdependence is shown in Table 5.27, followed by the examples of verbatim.

**Table 5.27**

*Frequency of factors that influence team creativity mentioned during interviews (Interdependence)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Interdependence</b>	<b>1</b>	<b>1</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Task interdependence	1	1

- **Task interdependence**

“And, for example, is someone in data team cannot do like don't have the time to export some data. They come back to my team that asked for the help, for example. Could you please running the SQL or whatever tool to export the data? Can you help them? I will check with my team that are they have some free time or not. And **then we go to help the team**. So, we help to get the two complete one on the job that we should complete, not just only we looked at, oh no, it's the data side that I should complete. They should manage the work and complete. It's not our work. No, we don't think about that. **We think about how we can correlation the work. Sometimes it's not. It's not my job to ask for that. It's not my job, for sure. But when we do, we do because we work as the team.**” By Api

#### 5.4.4.11 Working Spaces for creative experiment

The subfactor of Working Spaces for creative experiment is shown in Table 5.28, followed by the examples of verbatim.

**Table 5.28**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Working Spaces for creative experiment)*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Working Spaces for creative experiment</b>	<b>1</b>	<b>1</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Working Spaces for creative experiment	1	1

- **Working Spaces for creative experiment**

“...where we had **interactive spaces for people to go and experiment and play.**” By

Shane



## 5.4.5 MEDIATORS (Positive/Enhance)

### 5.4.5.1 Team Creative Process

Team leaders have identified team creative process as the most important Mediator category, which comprises subcategories such as ideation phase, research, selection phase, follow up feedback, and test (Table 5.29).

**Table 5.29**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Team creative process)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Ideation Phase</b>	<b>79</b>	<b>26</b>
<b>Research</b>	<b>22</b>	<b>8</b>
<b>Selection Phase</b>	<b>9</b>	<b>6</b>
<b>Follow up feedback</b>	<b>3</b>	<b>3</b>
<b>Test</b>	<b>3</b>	<b>2</b>

(n=33)

#### 5.4.5.1.1 Subcategory-level 1: Ideation Phase

The subfactors of the Ideation phase are shown in Table 5.30, followed by some examples of verbatim, which can be found more in Appendix C, Table C44.

**Table 5.30**

*Frequency of factors that influence team creativity mentioned during interviews (Ideation phase)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Ideation Phase</b>	<b>79</b>	<b>26</b>
<b>Subcategory-level 2</b>		
Ideation meeting	30	15
Brainstorming	17	8
Design thinking	10	7
Combining approach	6	6
Scrum meeting	6	4
Using agile process	5	3

Build on top ideas	4	4
Idea generation phase	4	2
Workshop + Ideation session	2	1
Refining individual ideas before meeting as creative process	1	1

(n=33)

- **Ideation meeting**

*“We do not have a lot of structures in place. I would say that the few structures that we do have in place is **just meeting structures** and what kind of meetings we have. So, when it is a project that involves two or more people, we always have a kickoff meeting and then we normally try to follow that up. So that's just to give the first debrief of what we want to achieve. And then normally we have a second meeting where we get together more. **Normally we classify it as a brainstorming meeting** where we are currently using.”* By Amadeus

- **Brainstorming**

*“It's a basic method, it's **brainstorming**. Because we have a topic, because we are brainstorming each topic, we will have to share the topic to look at the details and then present the progress. Meeting from time to time, depending on whether the project is short or long, then we will decide together by expressing opinions and **voting if we have different opinions** because we It may be necessary to choose to continue walking in the next step.”* By Pawinee

- **Design thinking**

*“It uses the principle of **design thinking**. In fact, the crazy idea project is **the starting point of design thinking**, must it be empathize. Empathize people inside first, and then*

*I said that when it was initiated . project and then we find teamwork members in that room who wants to do this project, they will raise their hands....”* By Noi

#### 5.4.5.1.2 Subcategory-level 1: Research

The subfactors of Research are shown in Table 5.31, followed by some examples of verbatim, which can be found more in Appendix C, Table C46.

**Table 5.31**

*Frequency of factors that influence team creativity mentioned during interviews (Research)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Research</b>	<b>22</b>	<b>8</b>
<b>Subcategory-level 2</b>		
Did extra research with key people	7	3
Research on competitor	6	3
We did research on material	3	1
Survey on customer	2	2
UX research	2	2
Benchmarking	1	1
Feasibility study	1	1

(n=33)

- **Did extra research with key people**

*“What we'll do is a series of **interviews with sort of key people within the company.** So, the bosses, the marketing directors, the salespeople who also of course it depends on what type of company it is, **but we always just try to cover lots of different people within the company.** So, we get a good, clear idea of what everyone is thinking. **We then do some research about who they are** and because a lot of times a company doesn't know how other people see them, you know, they think, okay, we do this, and people think of us like that. But that might not be true. The public can see them in a*

*very different way, and sometimes that's the problem. So, we do a lot of research to see how they are perceived in the market from other people.”* By Ben

- **Research on competitor**

*“So, like I said, we start with research and then from there we gather a lot of reference. So, there's a lot of competitive research you could call it as well, which falls in the in the research department as well. But that also gives you some guides which and then it goes into like a conceptualization stage where you are generating ideas based on your research and references that you've gathered. So that's, in the designer's part.”* By Matthew

#### 5.4.5.1.3 Subcategory-level 1: Selection phase

The subfactors of selection phase are shown in Table 5.32, followed by some examples of verbatim, which can be found more in Appendix C, Table C48.

**Table 5.32**

*Frequency of factors that influence team creativity mentioned during interviews (Selection phase)*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Selection phase</b>	<b>9</b>	<b>6</b>
<b>Subcategory-level 2</b>		
Vote	7	3
Follow up every quarter	2	2
Group all of the challenges into one specific project	1	1

**(n=33)**

- **Vote**

*“We will decide together by expressing opinions and **voting** if we have different opinions.”* By Pawinee

#### 5.4.5.1.4 Subcategory-level 1: Follow up feedback

The subfactors of follow up feedback are shown in Table 5.33, followed by the examples of verbatim, which can be found more in Appendix C, Table C50.

**Table 5.33**

*Frequency of factors that influence team creativity mentioned during interviews (Follow up feedback)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Follow up feedback</b>	<b>3</b>	<b>3</b>
<b>Subcategory-level 2</b>		
Listen to User/Customer feedback	2	2
Short meeting every Monday	1	1

(n=33)

- **Listen to User/Customer feedback**

*“The first thing is **to listen to user feedback**. We open an open channel for customers **to give feedback**. We get most of them. Customers wait for their delivery, but a lot of us send a lot of our products. They will say that this feature is not developed. **This, why our company doesn't do 1,2,3,4 order anymore...**”* By Moshi

#### 5.4.5.1.5 Subcategory-level 1: Test

The subfactors of test are shown in Table 5.34, followed by the examples of verbatim, which can be found more in Appendix C, Table C52.

**Table 5.34**

*Frequency of factors that influence team creativity mentioned during interviews (Test)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Test</b>	<b>3</b>	<b>2</b>
<b>Subcategory-level 2</b>		
Pilot	3	2
Test with user	1	1

(n=33)

- **Pilot**

*“There should be more **Pilot** that is, something to try, and then gave them a platform to express more...”* By Jay

- **Test with user**

*“Principle of Design thinking, then **pilot and then test with the user**. When the test is completed, we come out as a franchised product in 1 branch.”* By Moshi

### 5.4.5.2 Motivation

Team leaders have identified Motivation as the second most important in Mediator category, which comprises subcategories such as intrinsic motivation, and extrinsic motivation (Table 5.35).

**Table 5.35**

*Frequency of factors that influence team creativity mentioned during interviews (Motivation)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Motivation</b>	<b>55</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Intrinsic motivation</b>	<b>30</b>	<b>15</b>
<b>Extrinsic motivation</b>	<b>25</b>	<b>12</b>

(n=33)

#### 5.4.5.2.1 Subcategory-level 1: Intrinsic motivation

The subfactors of intrinsic motivation are shown in Table 5.36, followed by some examples of verbatim, which can be found more in Appendix C, Table C55.

**Table 5.36**

*Frequency of factors that influence team creativity mentioned during interviews (Intrinsic motivation)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Motivation</b>	<b>55</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Intrinsic motivation</b>	<b>30</b>	<b>15</b>
<b>Subcategory-level 2</b>		
Challenge and we had never done it before	11	8
KPI for creativity and innovation	7	4
Excitement	5	4
Believe	2	1
Having strong passion	2	1
Think big change	2	1
Creativity + encouragement + understanding of problem	1	1
Fight together until they finish the course	1	1

(n=33)

- **Challenge and we had never done it before**

*“It may be a new problem that **has never done before**. There will be a need to sit together and help each other think and help each other find a solution.”* By Jay

- **KPI for creativity and innovation**

*“It also has a centralized process of organizing knowledge that everyone must have **KPIs for creativity and innovation** that can be shared and sent as lessons learned that occur in each company to the public as a share practice that There is benefit value...”*  
By J

- **Excitement**

*“I think they thought it was a **fun project** because it's not something that we that we normally do. So normally when you do something, when it's not in your normal day to day activities, when it's something that is maybe the scope is it's different to what you're normally working on that definitely sparks more and more creativity.”* By Amadeus



#### 5.4.5.2.2 Subcategory-level 1: Extrinsic motivation

The subfactors of extrinsic motivation are shown in Table 5.37, followed by some examples of verbatim, which can be found more in Appendix C, Table C57.

**Table 5.37**

*Frequency of factors that influence team creativity mentioned during interviews (Extrinsic motivation)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Motivation</b>	<b>55</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Extrinsic motivation</b>	<b>25</b>	<b>12</b>
<b>Subcategory-level 2</b>		
Motivation as money support and rewards	10	2
Patent	7	4
Competitors	4	3
Client give us a reasonable budget	3	2
Good career path	1	1
Sponsorships	1	1

(n=33)

- **Motivation as money support and rewards**

*“In each project it must have **financial support and on the one hand is reward incentives**. In terms of money, I think it plays a part in making everything succeed faster **such as research funds**. It has the effect of making research work quickly then success.”* By Ken

- **Patent**

*“**Most of them is innovation, so it must have at least an IP to confirm that it is a product that is new in the world, no one has ever seen anything before, no one has done it before.**”* By Vivan

- **Competitors**

*“Competitors, I believe that competitors are also accelerating factors. If we don't do it, then there will be competitors to do it or that people who are called **existing in the market**. These factors are also important.”* By Moshi

#### 5.4.5.3 Psychological Safety

Psychological safety has been identified as the third most important in Mediator category, which comprises subfactors shown in Table 5.38 and followed by examples of verbatim.

**Table 5.38**

*Frequency of factors that influence team creativity mentioned during interviews (Psychological safety)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Psychological Safety</b>	<b>31</b>	<b>17</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Culture of sharing ideas without judgment	17	10
People have to feel safe to express the ideas	15	10

(n=33)

- **Culture of sharing ideas without judgment**

*“There has to be a culture **where everyone is free to share their ideas without judgment**. I feel like many times in, I feel it in our company as well, and sometimes there is people are scared of voicing their opinions, expressing their ideas, etc. and. That doesn't lead to any creativity at all.”* By Amadeus

- **People have to feel safe to express the ideas**

*“So, they and that's always important for creativity, is that people feel excited, they feel like they can contribute. So they have to feel safe that it's okay for them to have ideas”* By Gordon

#### 5.4.5.4 Synergy/Collaboration

Team leaders have identified Synergy/Collaboration as the fourth most important in Mediator category, which comprises subcategories such as Synergy and Open for collaboration (Table 5.39).

**Table 5.39**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Synergy/Collaboration)*

Positive/Enhance Category	Frequency	Leaders (N=33)
Synergy/Collaboration	27	11
<b>Subcategory-level 1</b>		
Synergy and Open for collaboration	27	11

(n=33)

##### 5.4.5.4.1 Subcategory-level 1: Synergy and Open for collaboration

The subfactors of Synergy and Open for collaboration are shown in Table 5.40, followed by some examples of verbatim, which can be found more in Appendix C, Table C62.

**Table 5.40**

*Frequency of factors that influence team creativity mentioned during interviews  
(Synergy and open for collaboration)*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Synergy/Collaboration</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Synergy and Open for collaboration</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 2</b>		
Synergy	15	3
Community of practice	4	3
Open for collaboration	4	4
Used collaborative software	4	4
Cooperation helps generate ideas	1	1

(n=33)

- **Synergy**

*“There is a synergy going in at all levels of employees, suggesting ideas, it will change from top down to bottom up and we do the whole group.”* By Aof

- **Community of practice**

*“The main activity of the team is to try to create a share apply atmosphere in the organization to collaborate and work as **Community of practices**, practitioners community, engineer group, accounting group, support group which in it. There are many work groups that are used to create **Community of practices** in order to create a model of meeting, exchanging, and learning among like-minded people who share the same interests.”* By J

- **Open for collaboration**

*“On our side, it will be open for collaboration for them to have knowledge, what they lacks, we prepare, that is, to prepare all employees, there will be a mix of business approaches and culture...”* By Aof

#### 5.4.5.5 Team Learning

Team leaders have identified Team learning as the fifth most important in Mediator category, which comprises subcategories such as knowledge sharing, learning process in team, training, and knowledge availability (Table 5.41).

**Table 5.41**

*Frequency of factors that influence team creativity mentioned during interviews (Team learning)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Knowledge sharing</b>	<b>16</b>	<b>15</b>
<b>Learning process in team</b>	<b>4</b>	<b>4</b>
<b>Training</b>	<b>4</b>	<b>4</b>
<b>Knowledge availability</b>	<b>1</b>	<b>1</b>

(n=33)

##### 5.4.5.5.1 Subcategory-level 1: Knowledge sharing

The subfactors of knowledge sharing are shown in Table 5.42, followed by some examples of verbatim, which can be found more in Appendix C, Table C65.

**Table 5.42**

*Frequency of factors that influence team creativity mentioned during interviews (Knowledge sharing)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Knowledge sharing</b>	<b>16</b>	<b>15</b>
<b>Subcategory-level 2</b>		
Knowledge sharing both in/external team	12	11
Knowledge sharing is the best team learning	3	3
KS and KT at early stage help us onboarding really very fast	1	1
Mentoring as KS	1	1

(n=33)

- **Knowledge sharing both in/external team**

*“Yes. I think a lot of ideas sharing or knowledge sharing that we get back and forth between when we discuss with each other that maybe, maybe is also internal in our team and also external with the client we share ideas and share how because normally the same problem we solve in a different way and we share each other that OK, so this team, solve this way and this team, solve this way. But sometimes we come up with some kind like mix and match plugin of the solution so shown that, OK, normally we do like this. But if we are adding some process of our suggestion for the client maybe good results.”* By Japan

- **Knowledge sharing is the best team learning**

*“Knowledge sharing is very important, some ideas are that we are not the ones who think for ourselves, so we have to share, share so that everyone accepts our ideas, sometimes some people will get the idea. Learn new things too.”* By Nipaporn

#### 5.4.5.5.2 Subcategory-level 1: Learning process in team

The subfactors of Learning process in team are shown in Table 5.43, followed by the examples of verbatim, which can be found more in Appendix C, Table C67.

**Table 5.43**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Learning process in team)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Learning process in team</b>	<b>4</b>	<b>4</b>
<b>Subcategory-level 2</b>		
Learning organization	2	2
Learning process	1	1
Team learning all the time	1	1

(n=33)

- **Learning organization**

*“There are many roles, we need employees at Innovative, because our organization is driven toward a **Learning organization**, that is, it is very important to create projects that are beneficial to the organization.”* By Vivan

- **Learning process**

*“So yeah, I think the **learning process** is very, it's key and it's key to just helping not only the job but also people and then their next work will get better and better from then on.”* By Matthew

- **Team learning all the time**

*“they're **learning all the time** that they're doing it and they're also teaching each other at the same time. And they're also reaching out to people in blogs about How do I do this? How do I do that? So super important.”* By Pawel

#### 5.4.5.5.3 Subcategory-level 1: Training

The subfactors of training are shown in Table 5.44, followed by the examples of verbatim, which can be found more in Appendix C, Table C69.

**Table 5.44**

*Frequency of factors that influence team creativity mentioned during interviews (Training)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Training</b>	<b>4</b>	<b>4</b>
<b>Subcategory-level 2</b>		
Give opportunity to members to learn and to become an expert	1	1
Need a specific kind of training as a facilitator	1	1

Our members may join seminar or workshop that create more ideas	1	1
Training	1	1

(n=33)

- **Give opportunity to members to learn and to become an expert**

*“We must give the opportunity to everyone in the team who goes into that expert.”*

By Nut

- **Need a specific kind of training as a facilitator**

*“So but that you need training to be able to do that. Right. You need you need a specific kind of training as a as a designer, a creative, to kind of look at a bunch of things and say, what can we do with this? So. That's why I think when I'm when I'm doing a workshop or I'm doing some kind of co-creation. I'm really not that worried about what I see. I'm not really worried about the output too much because it's my role. To take that output and make some meaning from it. Right. Whereas a lot of people say, no, no, no, the output has to be really good. You can't judge it. You really can't judge it. It's not the output itself. It's what you take it and you make it with. Right. You have to create meaning from that. So. So, yeah, **I think the, the people facilitating the people leading creative activities have to really be trained in an understanding. That you're not looking for the great idea at the end of a collaboration, creative collaboration. It's our job to make that great idea out of the output.**”* By Gordon

#### 5.4.5.5.4 Subcategory-level 1: Knowledge availability

The subfactor of Knowledge availability is shown in Table 5.45, followed by the examples of verbatim.



**Table 5.45**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Knowledge availability)*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Knowledge availability</b>	<b>1</b>	<b>1</b>
<b>Subcategory-level 2</b>		
Can access to Knowledge and Expertise from diff operations	1	1

**(n=33)**

- **Can access to Knowledge and Expertise from diff operations**

*“We were an agency with a brief, with a focus and with a task. Again, we were able to operate in a geographical locations. My agency was not one of one, it was one of many. We had many, many different operations around the world, so we were able to access those and bring in that knowledge and expertise.”* By Shane

#### **5.4.5.6 Communication**

Team leaders have identified communication as the sixth important category, which comprises subfactors as shown in Table 5.46

**Table 5.46**

*Frequency of factors that influence team creativity mentioned during interviews (Communication)*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Communication</b>	<b>24</b>	<b>14</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Communication among team members	13	7

Give Constructive feedback (Not comment on personal)	4	4
Informal meeting	4	3
Asking questions	2	2
Direct communication helps create good environment/ trust	2	2
Attentive listening	1	1

- **Communication among team members**

*“I think the communication aspect is probably more important than”* By Amadeus

- **Give Constructive feedback (Not comment on personal)**

*“This is the way we comment, we will comment in a way that is not personal, **does not attack personal quality with him, but we will take us very objectively, the work that we will criticize on the work and not criticize on the person**”* By Nina

- **Informal meeting**

*“Most of them are **informal**. Because I understand that with the covid situation than we haven't met at all, it's a meeting through a conference like this, so it doesn't look very formal.”* By Pom

### 5.4.5.7 Top management support

Team leaders have identified Top management support as the seventh important category, which comprises subfactors as shown in Table 5.47, followed by examples of verbatim, which can be found more in Appendix C, Table C75.

**Table 5.47**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Top management support)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Top management support</b>	<b>21</b>	<b>12</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Top-down management support	10	7
Clear direction from top management	6	5
Final decision from top-management or CEO	4	3
Stakeholder/CEO support	2	1
Our boss helps us how we get closer	1	1

(n=33)

- **Top-down management support**

*“I have to say that the other one has **received support from the top-level management team as well.** We think at the worker level. People who have already worked... **What is quite obvious is that the top-level management and executives agree with many concepts for it to allow it to happen.**”* By Nut

- **Final decision from top-management or CEO**

*“**The top level above decides, we are responsible for collecting and presenting, but in the end, it is decided at the top management level again.**”* By Nut

#### 5.4.5.8 External Interactions

Team leaders have identified external interactions as the eighth important category, which comprises subfactors as shown in Table 5.48, followed by examples of verbatim.

**Table 5.48**

*Frequency of factors that influence team creativity mentioned during interviews (External interactions)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>External Interactions</b>	<b>15</b>	<b>11</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Work with external team	11	10
Network collaboration	4	2
External funding	1	1

(n=33)

- **Work with external team**

*“We realized it was really too big for us to take on. And this is **when we started to contact bigger studio to help us** and. What I like is that at some point we really worked on it for six months as a team”* By Hadrien

- **Networking collaboration**

*“Another part that we do is linking with **various partnerships** to link and come to our own business with various deals. And the work that we are doing is quite related to partner agencies. Outside whether going to college, startup, university or even corporate partners, depending on the topic we're on into”* By Aof

- **External funding**

*“And thing we got some **funding from the DEPA** because there is some kind like the government. Some one of GOV org. in Thailand, they have some budgets to improve the skill of the worker in Thailand on Data Analytics and they announced this fund, we are gathering together to fishing for that fund. And we got that funds on the process of proposal develop is a bit hard.”* By Japan

#### 5.4.5.9 Relationship with client

Team leaders have identified Relationship with client as the nine important category, which comprises subfactors as shown in Table 5.49, followed by some examples of verbatim, which can be found more in Appendix C, Table C79.

**Table 5.49**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Relationship with client)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Relationship with client</b>	<b>13</b>	<b>7</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Client trusted us 100%	4	1
Customer approved our project	3	3
Relationship with client	1	1
Client listened to us	1	1
Client team learnt a lot from us	1	1
Client understanding the game/how we work	1	1
Client was flexible and willing to take risk	1	1
Customer feedback	1	1
Direct contact with decision makers	1	1

(n=33)

- **Client trusted us 100%**

*“It so successful for us was that the **client trusted us 100%**. And although we told them we're going to do something that you didn't ask for, they could see the power in what we wanted to do and how. By being creative.”* By Ben

- **Customer approved our project**

*“There's always a process and there's always steps you have to take not only in creative, but like to get creative to actually execute. **You have to get approval from like different departments in the company or like the clients.** So you're not going to like, for example, go and execute a creative job without showing like concepts to the client.”* By Matthew

- **Direct contact with decision makers**

*“**We had direct contacts with the decision makers.** So quite often a client will, you know, you'll have to see the top of a company and then you have lots of people and then you'll have the marketing people and only the marketing people will deal with you. And we never get to talk to the CEO and explain things to them properly, and that can always cause problems. Whereas with this project they were allowing us to talk to the leadership at every stage. **We were talking to decision makers, and that made us so much more successful and much more creative because we could understand what they wanted, not what somebody sat in office wanted.**”* By Ben

#### **5.4.5.10 Cohesion**

Team leaders have identified cohesion as the top ten important category, which comprises subfactors as shown in Table 5.50, followed by examples of verbatim.

Table 5.50

*Frequency of factors that influence team creativity mentioned during interviews (Cohesion)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Cohesion</b>	<b>10</b>	<b>7</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
We are close and get along with each other	4	4
Strong cohesion	3	3
Team spirit	2	2
Team building	1	1

(n=33)

- **We are close and get along with each other**

*“Guys and girls of the team were super close to each other. Like I said, they go out to take the drink, they go on a weekend. They were going like a lot of stuff together because the company culture and the way we're organized, it's not flat.”* By Hadrien

- **Strong cohesion**

*“I think that there was a good, **strong cohesion**. It wasn't perfect because everyone had to go away, build their strengths, come back.”* By Shane

- **Team spirit**

*“There is one factor that causes **team spirit**. It is the reason that they feel each other doing that.”* By Sai

#### 5.4.5.11 Share Mental Models

The subfactor and the examples of verbatim of Shared mental models:

- **Shared metal models**

*“If someone in his team don't understand the same direction or the same way or we don't talk and understand clearly in all the team, we cannot create the simple idea because like we do.”* By Api

#### 5.4.5.12 Creative Autonomy

The subfactor and the examples of verbatim of Creative Autonomy are as follows:

- **Creative Autonomy**

*“My team members have total freedom in how they would achieve the goals.”* By Anthony

*“You have to give him **freedom to give him time to think like that**, not force that he must get an answer today, so he must have a good idea right now.”* By Kietsakul

#### 5.4.5.13 Trust

The subfactor and the examples of verbatim of trust was shown here.

- **Trust**

*“**Trust is the most important one** because you cast the right people. There's no such thing as a bad idea, but there's a bad timing. Sometimes. Maybe it's a good idea, but it's not the right moment to bring it up.”* By Hadrien



#### 5.4.5.14 Apply New Technology

The subfactor and the examples of verbatim of Apply New Technology was shown in Table 131.

- **Apply new technology**

*“So, this was **using quite simple technology**. We used **Unreal Engine and a headset, VR headset**. And what it allowed us to do was to show the client exactly what the room would look like.”* By Pawel

#### 5.4.5.15 Coworker Support

The subfactor and the examples of verbatim of Coworker support was shown here.

- **Coworker support**

*“And but like I say before, you never hear about the team, the team from, for example, Albert Einstein. Of course, he also worked with people to verify his ideas. **But they are team in the background**.”* By Anthony

## 5.4.6 TIME (Positive/Enhance)

### 5.4.6.1 Time Pressure

Team leaders have identified time pressure as the most important category, which comprises subfactors as shown in Table 5.51

**Table 5.51**

*Frequency of factors that influence team creativity mentioned during interviews (Time pressure)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Time Pressure</b>	<b>29</b>	<b>15</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Clear Timeframe	11	7
Have enough Time for experiment	9	3
Time pressure helped to get certain results	5	5
We were given a very luxurious timeline	3	1
Advantages of time pressure	1	1

(n=33)

These are some examples of verbatim, for instance,

- **Clear Timeframe**

*“There **has to be enough time** in order for. That's for four projects, because it's all based on the goal and what has to be achieved with within this. And for some projects, we are setting maybe a too long timeline because it's also about. The business impact it has and how creative we need to be for that specific project. Sometimes it works just but there has to be **enough time, but there also has to be a timeline.**”* By Amadeus

- **Have enough time for experiment**

*“I guess the big difference is **they were able to experiment more** so normally on a project. On a client project, time is very short. So, the amount of time available to*

*experiment is very limited with this project because it was an internal project to start with. **We were able to give much more time for experimentation, and that really is the key to getting successful results.***” By Pawel

- **Time pressure helped to get certain results**

*“Time. Pressure is always important for creativity. So, **It was quite a lot of pressure and that forced us to come up with ideas quickly.**”* By Scott

#### 5.4.6.2 High Longevity

The subfactor and the examples of verbatim of High longevity was shown as

- **High longevity**

*“Well, me and my business partner have actually worked together for about eight years. So yeah, I think the fact that we have a shorthand with each other that we don't have to explain everything too much. I just get what he's saying and he gets what I'm saying. So yeah, I think that's very important.”* By Ben

*“I've had the experience of working together in a team that has just joined in and from a long time together. **For long time, they will have more trust together**”* By Jay

Additionally, Table 5.52, 5.53, 5.54 show the frequency of factors that negatively influence team creativity mentioned during interviews.

**Table 5.52**

*Frequency of factors that negatively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **INPUTS: NEGATIVE/HINDER**)*

<b>Frequency of factors that influence team creativity (INPUTS)</b>		
<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Factors outside team control	30	11
Poor leadership	28	10
Bad team composition	21	11
Specific context constraints in Thailand	14	5
Larger team size, Less creativity	4	2
Cultural factor of not taking ownership of ideas	1	1
Result oriented	1	1

**(n=33)**

**Table 5.53**

*Frequency of factors that negatively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **MEDIATORS: NEGATIVE/HINDER**)*

<b>Frequency of factors that influence team creativity (MEDIATORS)</b>		
<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Lack of Team creative process	27	12
Not clear goals and direction	8	4
Bad team learning	5	4
Related to clients	5	3
Resistance to change	4	2
Did the old same things	2	1
Lead to conflicts	2	2
My team didn't go to the same direction	2	2
Too big project that we can't take on	2	2
Low cohesion	1	1
They need to survive in this project	1	1

**(n=33)**

**Table 5.54**

*Frequency of factors that negatively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **TIME: NEGATIVE/HINDER**)*

<b>Frequency of factors that influence team creativity (TIME)</b>		
<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Time Pressure as Negative factors	18	13
High longevity reduces creativity and productivity	5	3

**(n=33)**

#### **5.4.7 INPUTS (Negative/Hinder)**

##### **5.4.7.1 Factors outside team control**

For negative factors, the team leaders mentioned Factors outside team control as the first top important factors during the interview in Table 5.55, followed by subfactors and examples of verbatim.

**Table 5.55**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Factors outside team control)*

<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Factors outside team control</b>	<b>30</b>	<b>11</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Limitation of budget	6	3
Need to control production costs	5	2
High expectation from top management	4	2
Campaign from management level as commander	3	1
Cannot commercialize	3	1
Restrictions on clients/customers	3	3
Company not support our project	2	2
Covid situation	2	1
Does not respond to customer needs	2	1
Cannot compete with China market	1	1

Restrictions on supply	1	1
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(n=33)

These are some examples of verbatim, which can be found in Appendix C, Table C94, for instance,

- **High expectation from top management**

*“The second one is the expectation. **The high expectation from the top management and the executive gives the problem.** It must be new, must be unique, must not be like what they have for sale in the market.”* By Nut

- **Campaign from management level as commander**

*“This type of campaign that I say is not so successful campaign. And the key point I want to go to the key point why I say that it's not a successful campaign. I think that is it's from this **campaign is from the management level. It's commander**”* By Api

#### 5.4.7.2 Poor leadership

The team leaders mentioned Poor leadership as the second top important factors during the interviews. Table 5.56.

**Table 5.56**

*Frequency of factors that influence team creativity mentioned during interviews (Poor leadership)*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Poor leadership</b>	<b>28</b>	<b>10</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Poor leadership	11	3
Leader does not so strict and guide team	4	1
Leader don't have time to take care or manage the team	3	1
Very senior takes lead in COP	3	1

Bad facilitation	2	1
Leaders are more criticize	2	1
Direct boss kill ideas	1	1
Leader was not good at fostering safe environment	1	1
Leader's communication is unclear	1	1

(n=33)

These are some examples of verbatim, which can be found in Appendix C, Table C96, for instance,

- **Poor leadership**

*“but the leader not perform well...”* By Japan

- **Leader does not so strict and guide team**

*“if the leader the if the leader is **not leading the team**, the project is bound to fail because the leader is **not giving direction and guiding the team to delivery**.”* By Matthew

- **Leaders are more criticize**

*“I would say, yeah, so leadership that is more. **That criticizes more than it. It's positive, it's something that really. Really blocks creativity and really block you to. Share that second idea that you have** when you think you have a great idea, when you think you, you, you come up with something new that you want to test or that you want to try, but you don't put it on the table because you're afraid of being shut down, basically.”* By Amadeus

- **Leader was not good at fostering safe environment**

*“On this project, we had a senior designer who was. He was very good, but a little prickly. And then, I mean, not as warm and friendly as we probably should have had*

*somebody on this on the product. He was really good at getting the work done, but was not good at fostering that safe environment.”* By Liam

#### 5.4.7.3 Bad Team Composition

The team leaders mentioned Bad team composition as the third top important factors during the interviews. Table 5.57 shows the subfactors of bad team composition.

**Table 5.57**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Bad team composition)*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Bad team composition</b>	<b>21</b>	<b>11</b>
-	-	
<b>Subcategory-level 2</b>		
Lack of specific knowledge and experience	9	5
Form a team not covered in the project	7	4
Bad attitudes lead to low creativity	1	1
Big team create free rider	1	1
High gap level of education	1	1
Multiple people that have multiple ideas will only lead conflicts	1	1
Team membership change	1	1

(n=33)

These are some examples of verbatim, which can be found more in Appendix C, Table C98, for instance,

- **Lack of specific knowledge and experience**

*“They didn't have the experience or knowledge of that kind of project. So they didn't use the expertise that we have and they didn't follow our process. Leader does not so strict and guide team”* By Scott



- **Form a team not covered in the project**

*“We didn't form a strong team before we went to see the client and we sent someone who. Was not straight out of school, but not that experienced, but very keen. And they went and got the brief from the client and thought they understood what the client wanted and. We didn't have enough senior people on the project, but the designer was very keen, very enthusiastic, quite creative and had a support team but didn't follow our process”* By Scott

- **Team membership change**

*“One thing I think that also. Personally, that is also blocking a lot of things, **it's a lot of change in people coming and going**, etc. And this is also. Breaking it's always good to getting new people, but also when you're losing people and getting new people and when you always have to go through these establishing, you have to establish the relationships again, you have to establish the trust again. So that is also one thing that when it comes to making people feel comfortable making retention is a big part of it to because you will not have. There will not be novel ideas coming from someone who just joined the business, I believe. They can come in with a new fresh perspective and come in with something that. But normally they will come in and they will do exactly what they did in another company.”* By Amadeus

#### 5.4.7.4 Specific context constraints in Thailand

The team leaders mentioned Specific context constraints in Thailand as the fourth top important factors during the interviews. Table 5.58 shows the subfactors and followed by examples of verbatim (See Appendix C, Table C100).

**Table 5.58**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Specific context constraints in Thailand)*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Specific context constraints in Thailand</b>	<b>14</b>	<b>5</b>
-	-	
<b>Subcategory-level 2</b>		
Hierarchy culture in Thailand	7	4
Thai culture	4	1
Context Constraints in Specific country (Thailand)	3	1

(n=33)

- **Hierarchy culture in Thailand**

*“There are issues I see some I do see, of course, people when they come in and the like, how the **hierarchy** is in the company. When we have people from Europe coming in in internship positions, even in a meeting with a senior executive, they are not afraid to ask a question or they are not afraid to maybe say something or ask something or and I also feel that, of course, then in in the team as well. And I do think, yeah, culturally from **there are some countries, Thailand is one example were. We don't see this this much**, and that is something that I think it doesn't mean that the creativity is not that right.”* By Amadeus

#### 5.4.7.5 Larger team size, Less creativity

The team leaders mentioned Larger team size, Less creativity as the fifth important factors during the interviews, for instance:

- **Larger team size, Less creativity**

*“Not too large or not so big team is so big team. Everyone cannot sharing the idea and maybe they do not confident or share idea if there are very big team.”* By Japan

#### 5.4.7.6 Cultural factor of not taking ownership of ideas

The team leaders mentioned Cultural factor of not taking ownership of ideas as the sixth important factors during the interviews, for instance:

- **Cultural factor of not taking ownership of ideas**

*“Sometimes I'm expected to just take care of everything. **Then people don't take ownership and then they don't push for what they believe in.** For example, they don't push for, Hey, I think this is a great idea or this is a great idea. This is also sometimes a cultural thing. So, there's a culture aspect to not the creativity, but. Pushing for your ideas, and if you're not showing your ideas, if you're not expressing your ideas and opinions, then you will not have creative results because you will just follow in the same. It will just follow in the same on the same path that you've always done things.”*

By Amadeus

#### 5.4.7.7 Result oriented

The team leaders mentioned Result oriented as the seventh important factors during the interviews. The example of verbatim for instance,

- **Resulted oriented**

*“In fact, though, that is not a success, I mean. Because we **think only try to finish the goal and result. We're not think on along the way.** I mean, the process of doing things, we do not focus more on the process, but we focused some kind of set points and we just ran to the points.”* By Japan

#### 5.4.8 MEDIATORS (Negative/Hinder)

##### 5.4.8.1 Lack of Team creative process

The team leaders mentioned Lack of Team creative process as the first important factors during the interviews. Table 5.59 provides the subcategories of Lack of Team creative process such as Lack of research and review process, Lack of engagement etc.

**Table 5.59**

*Frequency of factors that influence team creativity mentioned during interviews*

*(Lack of team creative process)*

<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Lack of Team creative process</b>	<b>27</b>	<b>12</b>
<b>Subcategory-level 1</b>		
<b>Lack of research and review process</b>	<b>17</b>	<b>7</b>
<b>Lack of Engagement</b>	<b>4</b>	<b>3</b>
<b>Creativity/ideas cannot be forced to think about</b>	<b>3</b>	<b>3</b>
<b>People process technology not support</b>	<b>2</b>	<b>1</b>
<b>Gap between creativity and execution</b>	<b>1</b>	<b>1</b>

(n=33)

#### 5.4.8.1.1 Subcategory-level 1: Lack of research and review process

The subfactors of Lack of research and review process are shown in Table 5.60, followed by some examples of verbatim, which can be found more in Appendix C, Table C106.

**Table 5.60**

*Frequency of factors that influence team creativity mentioned during interviews  
(Lack of research and review process)*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Lack of Team creative process</b>	<b>27</b>	<b>12</b>
<b>Subcategory-level 1</b>		
<b>Lack of research and review process</b>	<b>17</b>	<b>7</b>
<b>Subcategory-level 2</b>		
Lack of proper design review process	5	1
Restrictions on market survey to make new products	4	2
Didn't do in depth research on customer	3	2
Didn't talk with real user/operation who face the problem	3	1
Only get requirement from the User without process	2	1

(n=33)

- **Lack of proper design review process**

*“...but the designer was very keen, very enthusiastic, quite creative and had a support team **but didn't follow our process. So, we didn't have proper design review.**”* By Scott

- **Restrictions on market survey to make new products**

*“What is the limit that tells him like the first project that I said, is it a matter of improvement, Customer specification to existing products, it is not easy to do, **when a***

*project has other restrictions, restrictions on customers and market survey to make new products out and hit the market.”* By Nine

#### 5.4.8.1.2 Subcategory-level 1: Lack of engagement

The subfactors of Lack of engagement are shown in Table 5.61, followed by the examples of verbatim.

**Table 5.61**

*Frequency of factors that influence team creativity mentioned during interviews (Lack of engagement)*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Lack of Team creative process</b>	<b>27</b>	<b>12</b>
<b>Subcategory-level 1</b>		
<b>Lack of engagement</b>	<b>4</b>	<b>3</b>
<b>Subcategory-level 2</b>		
Lack of engagement	3	2
Collaborate without structure	1	1

(n=33)

- **Lack of engagement**

*“...It’s low engagement in team.”* By Kietsakul

- **Collaborate without structure**

*“For me personally than the collaboration aspect and actually getting together to do things together just because and just because you think that. That’s better, and we’re going to have better results from that, because when you put people in in in the same room or currently when we’re online, we’re all in the same screen looking at the same thing. And we are judging people like doesn’t mean that we that we want it, but we are doing that. We are judging people’s ideas internally in our heads. And I think when*

*you do put people together and it's like. Here now, we have one hour to collaborate, and we're going to do this. A lot of people are blocked by that. A lot of people are. People just freeze. It's like everyone is looking at it at each other and it's like, Oh, OK, what are we going to do now?"* By Amadeus

#### **5.4.8.1.3 Subcategory-level 1: Other negative factors in Lack of Team creative process**

Team leaders have identified “Creativity/ideas cannot be forced to think about”, “People process technology not support”, and “Gap between creativity and execution” as the other negative factors of Lack of Team creative process category as shown as following:

- **Creativity/ideas cannot be forced to think about**

*“Sometimes, like, yeah, people think too much, and your kind of. That's why they say, like, take a break. And sometimes, like, you're creative, you're trying to be creative. But at the time in depending on multiple factors that are happening in your life, sometimes you just can't think. So, the best thing to do is just do something else and you in the subconsciously be thinking about it. But doing something else kind of also helps you think differently”* By Matthew

- **Gap between Creativity and Execution**

*“The GAP between creativity or creative thinking and the actual execution process is that it fails because part is in high creativity, but it's not realistic or doesn't keep ongoing...”* By Aof

#### 5.4.8.2 Not clear goals and direction

The team leaders mentioned Not clear goals and direction as the second important factors during the interviews.

- **Not clear goals and direction**

*“Like we basically we have three people full time client, **but also that their direction was very unclear** and it seemed like things that they like before. Their direction would change basically from week to week, and that made it very difficult for the team. So, it created an environment.”* By Liam

#### 5.4.8.3 Bad team learning

The team leaders mentioned Bad team learning as the third important factors during the interviews. The examples of verbatim are shown as the following:

- **Didn't use the pool of knowledge and resources in the firm**

*“They didn't have **they didn't use the resources of the firm and the knowledge that we had in firm** that they thought they were smart and could do it by themselves and. Then they went and presented to the client this hotel and that, very proud of it. And we had never reviewed it internally.”* By Scott

- **If they are afraid to make a mistake, that limits creativity**

*“They're afraid to make a mistake, then that **limits creativity**.”* By Pawel

- **Not learn from each other**

*“I think we are not learn from each other if we learn from each other. I think the project may be more successful”* By Japan



- **Team members was refusing to learn new things**

*“Team learning. People was refusing to learn. **Absolutely refusing to learn.**”* By Anthony

#### **5.4.8.4 Related to client**

The team leaders mentioned Related to client as the fourth important factors during the interviews. The examples of verbatim are shown as the following:

- **Clients don't have clear idea of what they want**

*“I've noticed in Thailand also, is that when people are trying to do creative projects, they don't ask why. **They don't understand truly what they're trying to achieve and why they're trying to do it.** So that's usually when things go wrong.”* By Ben

- **Client Language barrier**

*“Communication in another language. They didn't. When I able to communicate with the client, they thought they knew. But it was in Vietnam, so they couldn't speak Vietnamese. So, okay, so there was like an issue of client of communication, but they could have just taken one of the other staff to the meeting.”* By Scott

#### 5.4.8.5 Resistance to change

The team leaders mentioned Resistance to change as the fifth important factors during the interviews. The examples of verbatim are shown as the following:

- **Designer don't want to change to new software (BIM)**

*“And usually the good designers, the creative designers are on the camp that don't want to change because they don't see BIM as helping them be being creative. They see BIM as just helping to do drawings.”* By Pawel

- **Project is creative but unable to overcome the mindset of people**

*“I don't want to say that this project fails because of the lack of creativity **since it has creativity but can't overcome the mindset**, including the continuity policy of use, which is the **mindset of society**.”* By Chu

#### 5.4.8.6 Did the old same things

The team leaders mentioned Did the old same things as the sixth important factors during the interviews. The examples of verbatim are shown as the following:

- **Did the old same things**

*“Thinking that **he did in the same things**, it doesn't come up with new ideas...”* By Ken

#### 5.4.8.7 Lead to conflicts

The team leaders mentioned Lead to conflicts as the seventh important factors during the interviews. The examples of verbatim are shown as the following:

- **Didn't get along with other team**

*“It could be, they could be a particular time where like **your creative team that works with the production team aren't getting along.**”* By Matthew

- **Toxicity between people**

*“No reason people were burning burnout and everything is just because **of the toxicity between the people.** That's it”* By Hadrien

#### 5.4.8.8 My team didn't go to the same direction

The team leaders mentioned My team didn't go to the same direction as the eighth important factors during the interviews. The examples of verbatim are shown as the following:

- **My team didn't go to the same direction**

*“There we go again. This German company. They thought they knew everything, and there was nothing that I could tell them what I wanted to do. And they started to do something else. **I wanted to go left and they go right. I wanted to go up. They went down and everything that I came up with, it was absolutely disaster.**”* By Anthony

#### 5.4.8.9 Too big project that we can't take on

The team leaders mentioned Too big project that we can't take on as the nine important factors during the interviews. The examples of verbatim are shown as the following:

- **Too big project that we can't take on**

*“It will be that we think of a project that is as big as it is. It's too big for us. We think we shouldn't be able to complete it in 1 year.”* By Nipaporn

#### 5.4.8.10 Low cohesion

The team leaders mentioned Low cohesion as the tenth important factors during the interviews. The examples of verbatim are shown as the following:

- **Low cohesion**

*“I'd say team cohesion. Well, there **wasn't really much cohesion** because they kind of just did themselves.”* By Scott

#### 5.4.8.11 They need to survive in this project

The team leaders mentioned They need to survive in this project as the eleventh important factors during the interviews. The examples of verbatim are shown as the following:

- **They need to survive in this project**

*“I think just the team kind of they all felt like they were fighting a war in the trenches, so to speak. So they would come up with creative ways to help each other survive in*

*this type of project. So it was a collaboration in that way that affected negatively the creative outcome.”* By Liam

#### **5.4.9 TIME (Negative/Hinder)**

##### **5.4.9.1 Time Pressure as Negative factors**

Team leaders have identified “Limited timeframe”, and “Didn't have enough time for experiments” for the negative factors of Time pressure category. The examples of verbatim are shown as the following:

- **Limited Timeframe**

*“Because, again, this is usually projects fail because of the **short deadlines** and not just yeah. Not being able to do process. So that would affect all the processes. And sometimes you would have to compromise a job and skip a process based on the time pressure.”* By Matthew

- **Didn't have enough time for experiments**

- **Don't have enough time for brainstorming or Design thinking**

*“But it just because there wasn't time for **it wasn't a lot of time for the brainstorming or the design thinking**. Because it just had to focus on output.”* By Liam

- **Have their routine jobs, don't have time for brainstorming ideas**

*“He has other work to do, maybe he **doesn't have time to develop to help brainstorm**, so he can't continue because he has his **routine job**.”* By Ken

- **Time to get to implement these ideas/decision making is long**

*“We start. But we cannot clear them because when we start this, what they do doing and we offer this to our brand, to marketing team or to the GM of the brand, **they're***

*thinking quite long and at that past is longer than our period that we can do this kind of this campaign. Then we have to change in another campaign. So the period of thinking about may take time. And when it takes time, we cannot complete that kind of campaign and we cannot list the target as we can get it.”* By Api

#### 5.4.9.2 High longevity reduces creativity and productivity

The examples of verbatim of high longevity are shown as the following:

- **High longevity reduce creativity and productivity**

*“if we know each other more. Yes, I think short may be better because **if we know is that for a long, we have the mental things to be inside the work, that mental thing. And I'm not say that's not good. But sometimes if we have the moral support of the thing that somehow my side not working so much and we care each other, but sometimes it's care, and Kind is not the good way to finish the things. But if we're know each other for long ok can we not only colleague , but we will be friends, but sometimes the mistake and some kind for forgive them. But forgive it's good I'm not say not good. But sometimes if we very close together, it's hard to order”*** By Japan

*“If you have the same team working for too long and you don't have input of new ideas or new members joining the team, adding new perspectives and an ideas, **I think. The creativity will maybe go up and be stable over a certain amount of time, but maybe it will also decline at the end.**”* By Amadeus

## 5.5 Quantitative Findings

**Table 5.62**

*To which extent do you think that the following dimensions contributed to your team creativity?*

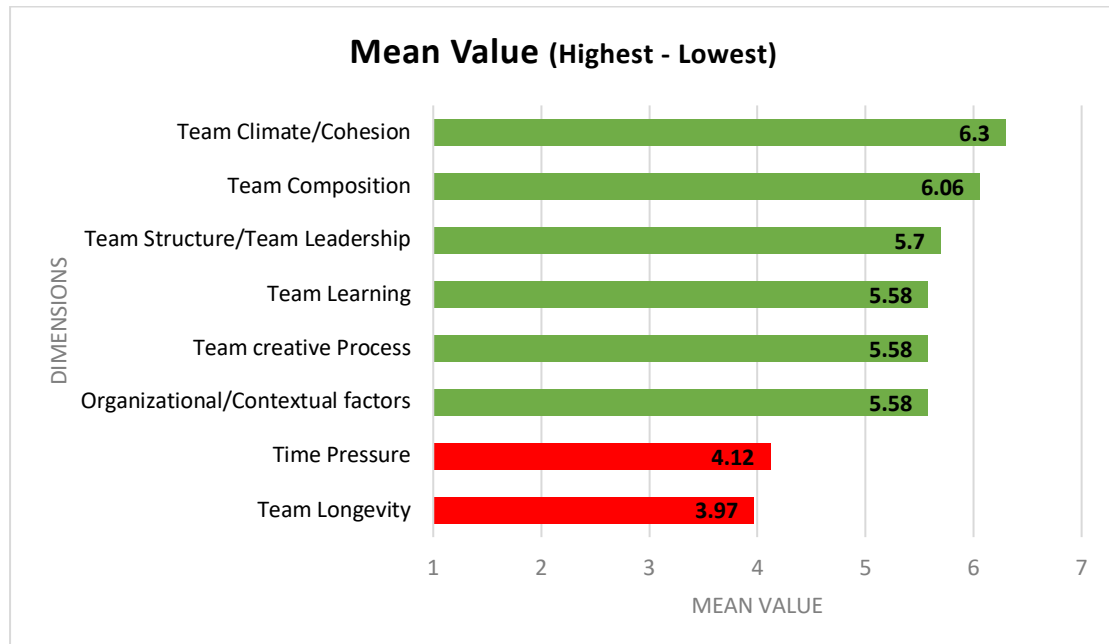
Dimension/ Category	To an Extre mely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderat e Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent	Mean	$\sigma$	Perception
<b>Team Composition</b>				4 (12.1%)	5 (15.2%)	9 (27.3%)	15 (45.5%)	<b>6.06</b>	<b>1.059</b>	<b>Most important</b>
<b>Team Structure/ Team Leadership</b>			1 (3.0%)	5 (15.2%)	7 (21.2%)	10 (30.3%)	10 (30.3%)	<b>5.70</b>	<b>1.159</b>	<b>Most important</b>
<b>Organizational/ Contextual factors</b>			3 (9.1%)	3 (9.1%)	6 (18.2%)	14 (42.4%)	7 (21.2%)	<b>5.58</b>	<b>1.200</b>	<b>Most important</b>
<b>Team creative Process</b>	1 (3.0%)		2 (6.1%)	3 (9.1%)	8 (24.2%)	8 (24.2%)	11 (33.3%)	<b>5.58</b>	<b>1.458</b>	<b>Most important</b>
<b>Team Climate/ Cohesion</b>					6 (18.2%)	11 (33.3%)	16 (48.5%)	<b>6.30</b>	<b>0.770</b>	<b>Most important</b>
<b>Team Learning</b>		1 (3.0%)	1 (3.0%)	1 (3.0%)	6 (15.2%)	16 (48.5%)	9 (27.3%)	<b>5.58</b>	<b>1.149</b>	<b>Most important</b>
<b>Team Longevity</b>	2 (6.1%)	4 (12.1%)	8 (24.2%)	7 (21.2%)	6 (18.2%)	3 (9.1%)	3 (9.1%)	<b>3.97</b>	<b>1.649</b>	<b>Less important</b>
<b>Time Pressure</b>	3 (9.1%)	5 (15.2%)	5 (15.2%)	6 (18.2%)	5 (15.2%)	4 (12.1%)	5 (15.2%)	<b>4.12</b>	<b>1.916</b>	<b>Less important</b>

Note N = 33

Decision = weigh average =  $42.89/8 = 5.36$

**Figure 5.1**

*Mean scores of Eight dimensions from highest to lowest*



Based on the data analysis, which aligned with interview results, it seems that most respondents perceived that team climate and cohesion is the most important factor in **contributing to their team creativity** followed the second top factor which is the composition of their team. Having a strong team structure and effective leadership was crucial in providing support for the team creativity. The leader plays a key role in this aspect. Moreover, the respondents believed that Organizational and Contextual factors such as Company culture have a significant impact on team creativity as they provide a positive culture for the team to be creative and productive. Without a proper creative process, the team cannot fulfill its goals and objectives. In addition, promoting team learning by sharing knowledge both within and outside the team can enhance creativity, which was seen as important by the respondents. However, most respondents consider Team longevity and Time pressure to be less important contributed to their team creativity. Other factors have been mentioned by the respondents, such as



- Trust
- Stakeholders and Top management support
- Communication
- New technology
- Networking/collaboration
- Client such as Client understanding and Communication with client
- Owner of the company (give freedom...)
- Timeframe
- Competitors
- Funding, Rewards
- Engagement with users
- Organizational culture
- Competencies of team members
- Refine creative thinking
- General Knowledge
- Attitudes
- Team spirit

As observed, significant differences exist between Creative (N=16) and other industries (N=17). We conducted an Independent Samples T-Test 1, to determine the significant difference between these two groups: the Creative industry and the Other industries, as shown in Table 5.63

**Table 5.63**

*Independent Samples T-Test 1*

		Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Team composition	Equal variances assumed	1.600	.215	-1.321	31	.098	.196	-.482	.365	-1.225	.262
	Equal variances not assumed			-1.311	28.519	.100	.200	-.482	.367	-1.233	.270
Team structure/Team leadership	Equal variances assumed	.580	.452	-.045	31	.482	.965	-.018	.410	-.855	.818
	Equal variances not assumed			-.045	30.722	.482	.964	-.018	.408	-.851	.814
Organizational/Contextual factors	Equal variances assumed	2.110	.156	-1.546	31	.066	.132	-.632	.409	-1.467	.202
	Equal variances not assumed			-1.536	29.014	.068	.135	-.632	.412	-1.474	.210
Team creative process	Equal variances assumed	.173	.681	-.762	31	.226	.452	-.390	.511	-1.433	.653
	Equal variances not assumed			-.764	30.993	.225	.451	-.390	.510	-1.430	.651
Team climate/Cohesion	Equal variances assumed	.053	.819	-.379	31	.354	.708	-.103	.272	-.657	.451
	Equal variances not assumed			-.379	30.928	.354	.707	-.103	.272	-.657	.451
Team learning	Equal variances assumed	3.128	.087	-2.881	31	.004	.007	-1.040	.361	-1.777	-.304
	Equal variances not assumed			-2.832	22.731	.005	.010	-1.040	.367	-1.801	-.280
Team longevity	Equal variances assumed	.027	.870	.731	31	.235	.470	.423	.578	-.757	1.603
	Equal variances not assumed			.730	30.764	.235	.471	.423	.579	-.758	1.604
Time pressure	Equal variances assumed	1.641	.210	-.528	31	.301	.601	-.357	.675	-1.734	1.020

		Levene's Test for Equality of Variances				t-test for Equality of Means					
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
						One-Sided p	Two-Sided p			Lower	Upper
Team learning	Equal variances assumed	3.128	.087	-2.881	31	.004	.007	-1.040	.361	-1.777	-.304
	Equal variances not assumed			-2.832	22.731	.005	.010	-1.040	.367	-1.801	-.280

P value < 0.05, Significant difference between 2 group

**Table 5.64**

*To which extent do you think that the following dimensions contributed to your low team creativity?*

<b>Dimension/ Category</b>	<b>Not answer</b>	<b>To an Extremely Small Extent</b>	<b>To a Very Small Extent</b>	<b>To a Small Extent</b>	<b>To a Moderate Extent</b>	<b>To a Large Extent</b>	<b>To a Very Large Extent</b>	<b>To an Extremely Large Extent</b>	<b>Mean</b>	<b>σ</b>	<b>Perception</b>
<b>Team Composition</b>	2 (6.1%)	7 (21.2%)	2 (6.1%)	4 (12.1%)	4 (12.1%)	1 (3.0%)	6 (18.2%)	7 (21.2%)	<b>3.91</b>	<b>2.467</b>	<b>Less important</b>
<b>Team Structure/ Team Leadership</b>	2 (6.1%)	6 (18.2%)	3 (9.1%)	2 (6.1%)	2 (6.1%)	7 (21.2%)	5 (15.2%)	6 (18.2%)	<b>4.03</b>	<b>2.378</b>	<b>Most important</b>
<b>Organizational/ Contextual factors</b>	2 (6.1%)	2 (6.1%)	3 (9.1%)	4 (12.1%)	6 (18.2%)	3 (9.1%)	8 (24.2%)	5 (15.2%)	<b>4.30</b>	<b>2.114</b>	<b>Most important</b>
<b>Team creative Process</b>	2 (6.1%)	4 (12.1%)	4 (12.1%)	1 (3.0%)	4 (12.1%)	6 (18.2%)	7 (21.2%)	5 (15.2%)	<b>4.18</b>	<b>2.256</b>	<b>Most important</b>
<b>Team Climate/ Cohesion</b>	2 (6.1%)	4 (12.1%)	2 (6.1%)	3 (9.1%)	3 (9.1%)	5 (15.2%)	8 (24.2%)	6 (18.2%)	<b>4.36</b>	<b>2.275</b>	<b>Most important</b>
<b>Team Learning</b>	2 (6.1%)	4 (12.1%)	3 (9.1%)	4 (12.1%)	6 (18.2%)	5 (15.2%)	3 (9.1%)	6 (18.2%)	<b>3.97</b>	<b>2.201</b>	<b>Less important</b>
<b>Team Longevity</b>	2 (6.1%)	7 (21.2%)	5 (15.2%)	6 (18.2%)	5 (15.2%)	4 (12.1%)	1 (3.0%)	3 (9.1%)	<b>3.09</b>	<b>2.006</b>	<b>Less important</b>
<b>Time Pressure</b>	2 (6.1%)	4 (12.1%)	5 (15.2%)	1 (3.0%)	2 (6.1%)	5 (15.2%)	6 (18.2%)	8 (24.2%)	<b>4.30</b>	<b>2.417</b>	<b>Most important</b>

Note N = 33

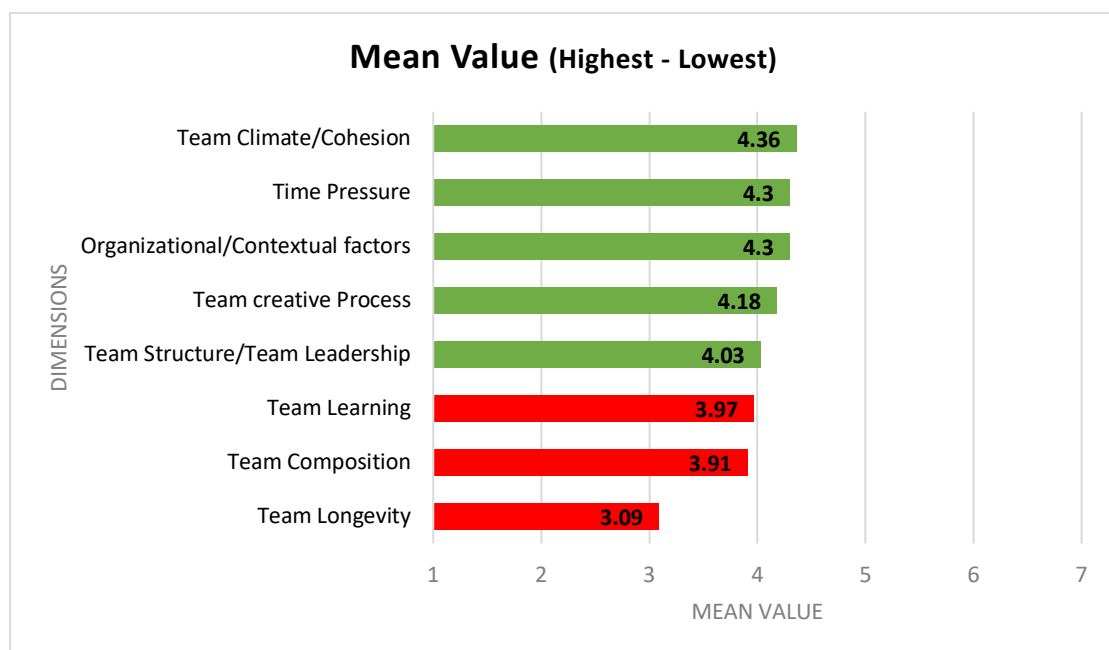
Decision = weigh average =  $32.14/8 = 4.02$

The respondents rated eight dimensions that contribute to their team's low creativity, and the results are shown in Table 5.64

According to the respondents, the most important factors for them were Team Climate/Cohesion, Organizational/Contextual factors, Time Pressure, Team Creative Process, and Team Structure/Team Leadership, respectively. The respondents did not consider team composition, team learning, and team longevity to be significant factors contributing to low team creativity.

**Figure 5.2**

*Mean scores of Eight dimensions from highest to lowest 2*



Additionally, Figure 5.2 presented the Mean scores of Eight dimensions from highest to lowest to answer the second rating question. Other negative factors that were highlighted by respondents included:

- Financial constraints
- Fix the KPI of creativity and innovation
- Not clear brief and exercise and goals

- Covid situation
- No collaboration
- Thai hierarchy culture, such as Senior-junior
- Time to commercial
- Pressure from top management policy
- Lack of experience

We conducted an Independent Samples T-Test 2 to determine the significant difference between the two groups which focused on dimensions that contributed to the low team creativity in creative industry and the Other industries, as shown in Table 5.65

**Table 5.65**

*Independent Samples T-Test 2*

		<b>Independent Samples Test</b>										
		Levene's Test for Equality of Variances				t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	Lower	Upper	
						One-Sided p	Two-Sided p					
Team composition	Equal variances assumed	.072	.790	-.636	31	.265	.530	-.551	.867	-2.320	1.217	
	Equal variances not assumed			-.636	30.924	.265	.529	-.551	.867	-2.320	1.217	
Team structure/Team leadership	Equal variances assumed	.491	.489	.219	31	.414	.828	.184	.841	-1.531	1.899	
	Equal variances not assumed			.218	30.068	.415	.829	.184	.844	-1.540	1.907	
Organizational/Contextual factors	Equal variances assumed	.005	.943	.187	31	.426	.853	.140	.748	-1.385	1.664	
	Equal variances not assumed			.186	30.504	.427	.853	.140	.749	-1.389	1.669	
Team creative process	Equal variances assumed	1.879	.180	-2.683	31	.006	.012	-1.930	.719	-3.397	-.463	
	Equal variances not assumed			-2.670	29.575	.006	.012	-1.930	.723	-3.407	-.453	
Team climate/Cohesion	Equal variances assumed	.087	.770	-1.045	31	.152	.304	-.827	.791	-2.441	.787	
	Equal variances not assumed			-1.042	30.263	.153	.306	-.827	.794	-2.447	.793	
Team learning	Equal variances assumed	.028	.868	-2.475	31	.010	.019	-1.761	.712	-3.212	-.310	
	Equal variances not assumed			-2.477	30.959	.009	.019	-1.761	.711	-3.211	-.311	
Team longevity	Equal variances assumed	.001	.974	-.946	31	.176	.352	-.662	.700	-2.089	.765	
	Equal variances not assumed			-.945	30.682	.176	.352	-.662	.701	-2.091	.768	
Time pressure	Equal variances assumed	.001	.971	-.448	31	.328	.657	-.382	.853	-1.357	2.121	

		<b>Independent Samples Test</b>										
		Levene's Test for Equality of Variances				t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Significance		Mean Difference	Std. Error Difference	Lower	Upper	
						One-Sided p	Two-Sided p					
Team creative process	Equal variances assumed	1.879	.180	-2.683	31	.006	.012	-1.930	.719	-3.397	-.463	
	Equal variances not assumed			-2.670	29.575	.006	.012	-1.930	.723	-3.407	-.453	
Team learning	Equal variances assumed	.028	.868	-2.475	31	.010	.019	-1.761	.712	-3.212	-.310	
	Equal variances not assumed			-2.477	30.959	.009	.019	-1.761	.711	-3.211	-.311	

P value < 0.05, Significant difference between 2 group

## 5.6 Chapter summary

This chapter provided the findings which answered RQ1.2 on What factors influence team creativity **in Practice**. The top dimensions and factors of Team Creativity IMOT Model (TCIM) highlighted by team leaders were presented. The section clearly showed the dimensions and factors of team creativity in the field. Moreover, quantitative findings also provided which the alignment of the findings from qualitative interview.

## CHAPTER 6

### HOW IS TEAM CREATIVITY PROCESS AFFECTED BY CRITICAL INCIDENTS

#### 6.1 Introduction

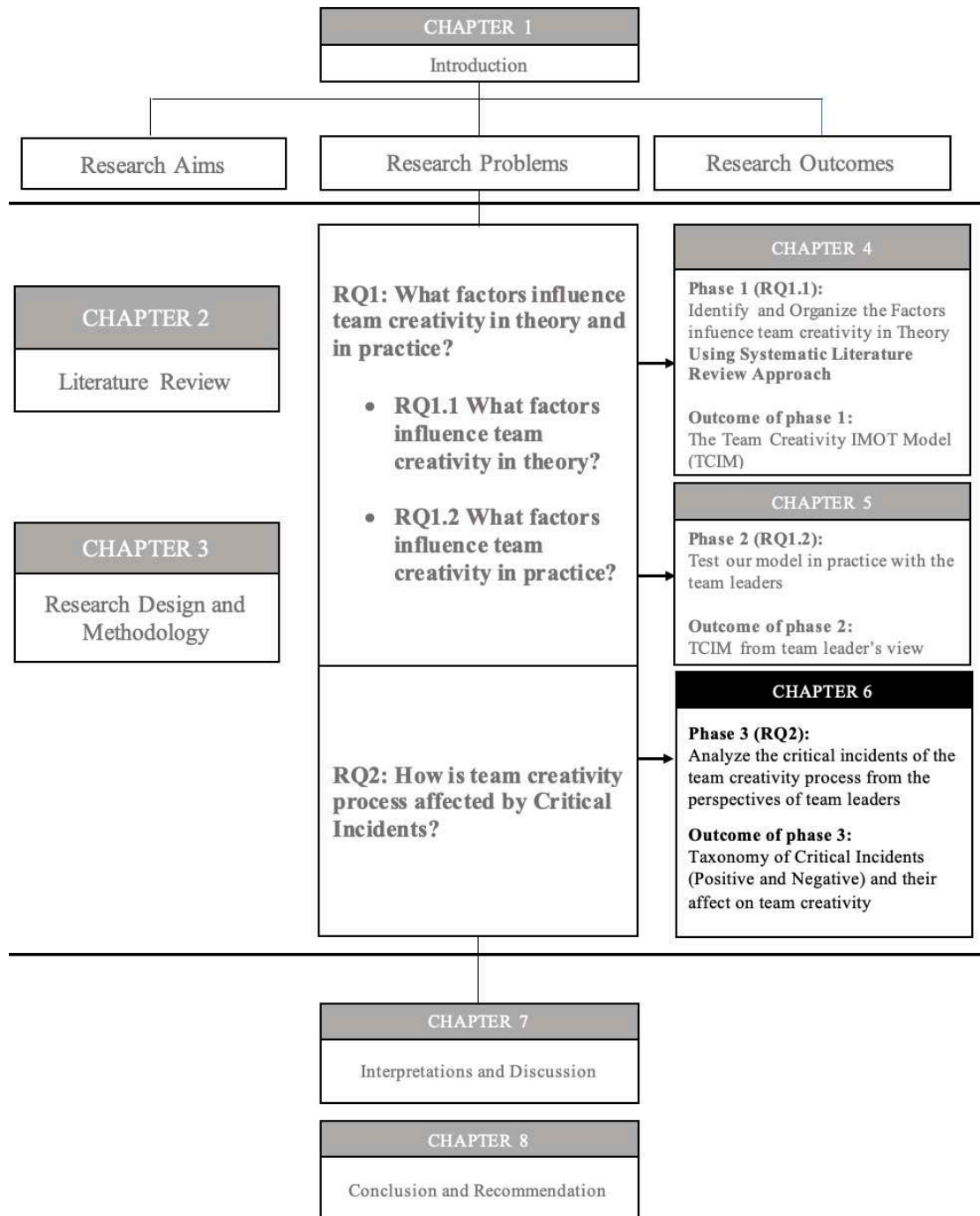
In order to answer the second research question (RQ2) on how is team creativity process affected by Critical Incidents, we added Critical Incidents study, which can be an in-depth understanding of the team creativity process in specific contexts and situations. An incident is something unexpected and unique that's happening at a specific time (observe the situation in a specific time, e.g., 1. From memory 2. Daily observation), and it is composed of behaviors (person acts). It can be called "Critical" when it leads to positive/effective or negative/ineffective results. In addition, a person for observation should relate to "Aim," in which in this research our aim was to identify critical incidents that contribute to high levels of creativity in a team (positive) and those that contribute to low levels of creativity (negative). Team leaders are the best observers for ensuring that a specific job is performed correctly and efficiently (Flanagan, 1954).

The CIT method doesn't have strict rules for analysis, instead, it allows principles to be adjusted based on each individual case. A critical incident analysis typically includes information about the background (how things were before the incident), the experienced event, and the consequences (what happened or did not happen because of the event). The results can be reported as general or specific categories depending on what is more practical for the situation (Butterfield et al., 2005).



In this chapter, we present the findings of research question (RQ2) as follows:

**Research Question 2: How is team creativity process affected by Critical Incidents?**



## 6.2 Critical Incidents

During interviews with team leaders, we asked them to recall a successful project where their team displayed a high level of creativity, and not so successful project where team demonstrated some low level of creativity. The critical incidents were categorized into positive, negative, and sequence (both positive and negative) ones. These incidents have been grouped into thematic categories and listed in the table below (Table 6.1, 6.2, 6.3). The verbatims are also included for each category, followed by a summary table. We noticed that team leaders in the creative industry reported more critical incidents than those in other industries.

**Table 6.1**

*Positive critical incidents reported by team leaders*

<b>Positive critical incidents</b>	<b>C (n=16)</b>	<b>O (n=17)</b>
1. Unexpected constraints lead to positive consequences	4	
2. Collaboration with external teams/partners	2	
3. When creative process blocks, take a break and step away from work	1	
4. Tension and conflict	1	
5. Financial Constraints and Unexpected Constraints lead to Positive consequences		1
6. New technology use constraints lead to Positive consequences	1	
7. When faced with disruption, the ability to adapt becomes crucial		1
8. A new discovery led to networking collaboration		1

Notes: C= Creative Industry, O = Other industries

**Table 6.2**

*Negative critical incidents reported by team leaders*

<b>Negative critical incidents</b>	<b>C (n=16)</b>	<b>O (n=17)</b>
1. Unexpected constraints lead to negative consequences	1	
2. One person destroys the dynamic of a team	1	
3. Not having right people in team composition	1	
4. Resistance to change	1	
5. Hierarchy culture		1

Notes: C= Creative Industry, O = Other industries

**Table 6.3**

*Sequence of critical incidents reported by team leaders*

<b>Critical incidents as a sequence</b>	<b>C (n=16)</b>	<b>Sequence of critical incidents</b>
Initial failure might lead to more creative		
1. People misunderstood in team creative process	1	Negative incident
2. The Capability of leader to be flexible	1	Positive incident
Initial failure might lead to more creative		
1. People resisted to do the creative process, DT	1	Negative incident
2. The Capability of leader to be flexible	1	Positive incident

Notes: C= Creative Industry

### **6.2.1 Positive Critical Incidents**

There is a list of positive critical incidents, which include:

#### **6.2.1.1 Unexpected Constraints lead to Positive consequences**

Team leaders reported that *unexpected constraints* resulted in positive outcomes, which they viewed as positive critical incidents, including:

- **Example 1**

*“We actually became creative because suddenly, we were given a frame that was way more than we're more constraints. Right. And I think this is where brilliant, creative people suddenly arise. It's like because when you have like all this possible, well, then you can do whatever you want, and anyone can create whatever they want because you can; there are no rules. There's no there's no limits. Of course, we had prior. But when this publisher said it has to be released on this date, it has to cater to this kind of audience. We don't want this. We don't want that because we don't sell this kind of game. And everything, for example, Ultraviolence and Gore, was out of the question for them. And so, we had to reimagine how we create fear and how we create tension without the player being afraid of having the character dying. And that was really*

*interesting. And so what really worked with it, again, the same stuff is curiosity is going outside of our comfort zone, starting to look at other games or other books, movies that we would and especially the one we didn't like. And they were a huge success.” By Mr. Hadrien*

**Table 6.4**

*Summary of example 1: Unexpected Constraints lead to Positive consequences*

<b>Antecedent (how things were before the incident)</b>	The the one of the main project that we worked on that was never released is called XXX. The project was like a super complex lore, we realized it was really too big for us to take on.
<b>The experienced event (action)</b>	We actually became creative because suddenly, we were given a frame that was way more than we're more constraints. ...When this publisher said it has to be released on this date, it has to cater to this kind of audience. We don't want this. We don't want that because we don't sell this kind of game. And everything, for example, Ultraviolence and Gore, was out of the question for them. And so, we had to reimagine how we create fear and how we create tension without the player being afraid of having the character dying.
<b>The consequences (what happened or did not happen because of the event)</b>	And so what really worked with the it's again, the same stuff is curiosity is going outside of our comfort zone, start to look at other games or other books, movies that we would and especially the one we didn't like. And they were a huge success.

- **Example 2**

*“The successful project that we are currently working on is an auction website, Buddha auction items, which means we will focus on the Buddha amulet industry. The project that we do now is if we study the market well and look at the use of technology to enter the Buddha amulet industry, **finding Ideas from the Internet are quite difficult. So, it is encouraging that we must try to think more creatively that nowadays, there will be many other auction sites, right? If we follow the best practice as usual, in the end, our products may not be different from the market, so we have to think, so we have to add creativity to our project by pulling from many industries. For example, some***

*industries will have a function that we think should apply to our current project. Then try to apply it and see then give it to the customer or let the project manager himself see if it's ok or not. It is cross ideas from different industries... As a result, this website is easy to use and answers the customer's questions. So, they actually used it and have good feedback for us.”* By Mr. Boy

**Table 6.5**

*Summary of example 2: Unexpected Constraints lead to Positive consequences*

<b>Antecedent (how things were before the incident)</b>	if we study the market well and look at the use of technology to enter the Buddha amulet industry, finding Ideas from the Internet are quite difficult. So, it is encouraging that we must try to think more creatively that nowadays, there will be many other auction sites, right? So, if we follow the best practice as usual, in the end, our products may not be different from the market...
<b>The experienced event (action)</b>	so we have to think, so we have to add creativity to our project by pulling from many industries. For example, some industries will have a function that we think should apply to our current project. Then try to apply it and see then give it to the customer or let the project manager himself see if it's ok or not. It is cross ideas from different industries...
<b>The consequences (what happened or did not happen because of the event)</b>	As a result, this website is easy to use and answers the customer's questions. So, they actually used it and have good feedback for us.

- **Example 3**

*“So, a recent project I did was N international school. Have you heard of this international school? It's based in Bangkok. **And they had been because of COVID-19. Their campus had been shut for basically two years**, you know, with all the students or spread out and learning remotely. And they came to us and said, we need we want to create a video. They welcome all of the students back to the campus to start the new year and also introduces them to a lot of changes that we've made. So their initial brief was basically very simple. You know, we were imagining the head teacher talking to the students and saying, welcome back, we're building a new building here. This is going to be very*

*helpful for us moving forward and just explaining a bit about the COVID protocols. So that's what we initially thought that was what the brief from the client was. But we then doing our full strategic process that I just explained to you. We started interviewing the head teachers. We started interviewing the heads of year. We started interviewing parents. And we interviewed some students. And we spent probably about at least three weeks, maybe four weeks doing lots and lots of interviews. We interviewed about 30 or 40 people that were all key stakeholders in the school and had a lot of board of directors as well. And they gave us so much insight into the school and really what made the school such a very special place, because they have a very different philosophy on education to many other schools. For them, it's not just about academics and getting A's all the time. It's about making complete people, someone who can be a global citizen. And that's their big thing, is being global citizens and being responsible in the world, making the world a better place. So we talked to the client, and we thought this is a much better story to tell than just welcome back. Covid 19 was bad, wasn't it? So then we turned the whole thing around, and we turned it into a video that really celebrated everything. It is about the school and why they're happy to come back... So for us, what we found through all of our strategies was it was all about joy. And it was the joy that the students feel when they're learning, and they're evolving, and they're blossoming as people. It's the joy that the parents have when they see their students; they see their children doing so well. And then the joy that the teachers have in teaching these students and seeing how they respond. So we came up with this whole concept of joy that missed is joy, and it was all the things that connect those points*

*together. So once we had that, that was like a key that unlocks a whole world of created for us.” By Mr. Ben*

**Table 6.6**

*Summary of example 3: Unexpected Constraints lead to Positive consequences*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>A recent project I did was N international school. Have you heard of this international school? It's based in Bangkok. <b>And they had been because of COVID 19. Their campus had been shut for basically two years</b>, you know, with all the students or spread out and learning remotely. And they came to us and said, we need we want to create a video. The welcome all of the students back to the campus to start the new year and also introduces them to a lot of changes that we've made. So their initial brief was basically very simple</p>
<p><b>The experienced event (action)</b></p>	<p>We initially thought that was what the brief from the client was. But we then doing our full strategic process that I just explained to you. We started interviewing the head teachers. We started interviewing the heads of year. We started interviewing parents. And we interviewed some students. And we spent probably about at least three weeks, maybe four weeks doing lots and lots of interviews. We interviewed about 30 or 40 people that were all key stakeholders in the school and had a lot of broad of directors as well. And they gave us so much insight into the school and really what made the school such a very special place.</p>
<p><b>The consequences (what happened or did not happen because of the event)</b></p>	<p>So for us, what we found through all of our strategies was it was all about joy. And it was the joy that the students feel when they're learning, and they're evolving, and they're blossoming as people. It's the joy that the parents have when they see their students; they see their children doing so well. And then the joy that the teachers have in teaching these students and seeing how they respond. So we came up with this whole concept of joy that missed is joy, and it was all the things that connect those points together. <b>So once we had that, that was like a key that unlocks a whole world of created for us</b></p>

- **Example 4**

*“Yeah. I can give you one. To set. The strongest example I have was about. It was January, February 2021. So a little over a year, year and a half ago. It was the biggest health and beauty brand super grand opening on the platform. And that was **it was a tough project** because it was. Senior designer myself as senior design management director. It was probably taking about half of our time. Each day for like two or three months plus. We had some of the*

*other members also joining in and helping out. It was. How did we come up with. There was a lot of brainstorming, a lot of back and forth, a lot of individual and combined research on how do we approach the launch of this brand, very well known brand, a lot of marketing budget behind this launch. It had to go extremely well. **So how do we minimize basically how do we make most effective not just the actual launch? And how the customer perceive it, but also even back towards how do we make it make our clients most effective in our clients.** They're reviewing with our other departments, the other teams most effective. So it was. Kind of a little bit more traditional in the way that **we kind of all sat in the same room for like 3 to 4 weeks, just looking at new stuff, iterating. And I guess it's a bit of the classical design process where you just you pick a point of inspiration to jump on, to quickly iterate. Present it to the rest of the team... ...Get feedback. It can continue that cycle like design thinking, brainstorming, iterating over and over and over again. Yeah. And. Yeah, it was. It was, I think, what the team came up with in terms of a novel solution, maybe not classically creative, but. The sort of technically minded we had. This plan had a large number of products in it being like 100. So let's say about 100 products that we need to launch at the same time. And we had to maximize our resources and. We could have either done like this 100 products we need to do sparingly, different images and treatments for all of these. But we didn't want to have somebody individually doing every single image by hand. So, we came up with a way of automating part of the process that also enabled kind of rapid retooling...***



*Depending on changes from the client side or other department team side so we can iterate, reproduce and so having to go in and change each of those images, let's say for 100 products, we would have 400 images instead of having to do them all by hand every single time there was a change. We came up with a way to leverage. Some of the tools to allow us to automate what would be typically a four hour process into a five minute process. **So that allowed us to very quickly showcase a much more finished product and get a higher quality and caliber of feedback for the other stakeholders in this project. I think a big stimulant was, I think the varying backgrounds. So like at the time, yes. Our career director at the time South African gentleman that. If a Canadian then retired and. Like very local ties and more like internationally educated Thai as well. So having that mix of influences and backgrounds really, really helped accelerate our understanding of the client and the brand and also understanding of how do we translate that into the local market.**"* By  
Mr. Liam

**Table 6.7**

*Summary of example 4: Unexpected Constraints lead to Positive consequences*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>Yeah. I can give you one. To set. The strongest example I have was about. It was January, February 2021. So a little over a year, year and a half ago. It was the biggest health and beauty brand super grand opening on the platform. And that was it was a <b>tough project</b> because it was. Senior designer myself as senior design management director. It was probably taking about half of our time. Each day for like two or three months plus. We had some of the other members also joining in and helping out. It was. How did we come up with. There was a lot of brainstorming, a lot of back and forth, a lot of individual and combined research on how do we approach the launch of this brand, very well known brand, a lot of marketing budget behind this launch. It had to go extremely well. <b>So how do we minimize basically how do we make most effective not just the actual launch? And how the customer perceive it, but also even back towards how do we make it make our clients most effective in our clients.</b></p>
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<b>The experienced event (action)</b>	We kind of all sat in the same room for like 3 to 4 weeks, just looking at new stuff, iterating. And I guess it's a bit of the classical design process where you just pick a point of inspiration to jump on, to iterate quickly. Present it to the rest of the team... ..Get feedback. It can continue that cycle like design thinking, brainstorming, and iterating over and over and over again. Yeah. And. Yeah, it was. It was, I think, what the team came up with in terms of a novel solution...
<b>The consequences (what happened or did not happen because of the event)</b>	So, we came up with a way of automating part of the process that also enabled kind of rapid retooling... So that allowed us to very quickly showcase a much more finished product and get a higher quality and caliber of feedback for the other stakeholders in this project...

### 6.2.1.2 Collaboration with external teams/partners

Here are the additional critical incidents that are considered positive results:

- *Example 1*

*“One of the main projects that we worked on that was never released is called XXX. And it was a whole world with like a super complex lore. And as we progressed further, we realized it was really too big for us to take on. And this is when we started to contact the bigger studio to help us. What I like is that at some point, we really worked on it for six months as a team. We agree on everything. We had this vision. We were like really enjoying it, building a lot of stuff. And when we started working with two other studios, one publisher and one studio, they started to say, Well, yeah, but could you do this? Could you do that instead? And we couldn't say no, right? Because they were bringing a lot of crash. And what I liked is that instead of just rejecting everything or just being depressed because they're like, Oh no, it completely changes to the scope of the game, the vibe of the game, the flow of the game.”* By Mr. Hadrien

Table 6.8

*Summary of example 1: Collaboration with external teams/partners*

<b>Antecedent (how things were before the incident)</b>	The the one of the main project that we worked on that was never released is called XXX. The project was like a super complex lore, we realized it was really too big for us to take on. And this is when we started to contact the bigger studio to help us.
<b>The experienced event (action)</b>	What I like is that at some point we really worked on it for six months as a team. We're agreeing on everything. We had this vision. We were like really enjoying it, building a lot of stuff. And when we started working with two other studio, one publisher and one studio, they started to say, Well, yeah, but could you do this? Could you do that instead? And we couldn't say no
<b>The consequences (what happened or did not happen because of the event)</b>	it completely changes to the scope of the game, the vibe of the game, the flow of the game.

- **Example 2**

*“So, let's consider, for instance, a recent job that took place just last week. Our executives were scheduled to visit the Minister of DE in Bangkok, and we were given only a one-week notice. Initially, we felt overwhelmed by the task of securing an appointment with the minister within such a short timeframe. Additionally, the main agenda was to sign a Memorandum of Understanding (MOU), which seemed almost impossible. However, we gathered the entire team, both in Singapore and Thailand, and sought assistance from the ministry's secretary, who kindly joined our efforts. We began by dividing responsibilities among the team members to tackle the various obstacles we faced. One major challenge involved coordinating the Thailand pass, test&go requirements, and other related matters. We assigned team members to liaise with our executives and handle the logistics of the event, including securing the venue. Most crucially, we focused on the content of the MOU, recognizing its legal significance. As this was the first English-language*

*MOU in our company, we needed to ensure accurate translation and sought assistance from the ministry's legal representative. Furthermore, we allocated resources to address transportation logistics, such as arranging for our company's executives to travel to the ministry. Catering and hospitality arrangements were also managed by dedicated team members. Coordinating with reporters within a one-week timeframe proved to be a challenging task, but we tackled it collectively, each taking on our respective duties. As the departure date approached, we conducted a comprehensive review to identify any missing elements or potential gaps in our plan. We brainstormed alternative solutions and implemented backup strategies to mitigate risks. This experience proved to be a formidable challenge, but through meticulous planning and assigning individual responsibilities, **we successfully navigated through the obstacles. It underscored the importance of working together as a cohesive team.**"* By Ms. Pom

**Table 6.9**

*Summary of example 2: Collaboration with external teams/partners*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>Our executives were scheduled to visit the Minister of DE in Bangkok, and we were given only a one-week notice. Initially, we felt overwhelmed by the task of securing an appointment with the minister within such a short timeframe. Additionally, the main agenda was to sign a Memorandum of Understanding (MOU), which seemed almost impossible. However, we gathered the entire team, both in Singapore and Thailand, and sought assistance from the ministry's secretary, who joined our efforts.</p>
<p><b>The experienced event (action)</b></p>	<p>We gathered the entire team, both in Singapore and Thailand, and sought assistance from the ministry's secretary, who kindly joined our efforts. We began by dividing responsibilities among the team members to tackle the various obstacles we faced.</p>
<p><b>The consequences (what happened or did not happen because of the event)</b></p>	<p>We successfully navigated through the obstacles. It underscored the importance of working together as a cohesive team</p>

### 6.2.1.3 When creative process blocks, take a break and step away from work

- *Example 1*

*“But eventually, it was really going. Yeah. It's 8 p.m. Everyone is tired. Your eyes are burning, and you have two options. Either you say, I don't care. We all work until midnight until we find an idea. Or you manage to convince them to go like all, Let's go grab a beer. Let's just go. Let's just go out. And actually, while we're having a beer and renting and go, yeah. One hour later, we'd be like, Oh, but you know what, actually? And then literally you bring some papers, you start doing stuff because you widen you reduce the stress. As you probably know, you know, high levels of prolactin or cortisol tend to fog your capacity to think, right? So when you start to get a little bit not drunk, but just you get a little bit of alcohol, you're relaxing with your friends. You see other friends; you stop thinking about work. You actually start cursing and be like, Oh, no, no, no. It actually releases a lot of stress. And you can not always, but sometimes you kind of like switch gears, and we would, yeah, just relax a bit, and some ideas would emerge from this, but that worked for all the projects.”*

*By Mr. Hadrien*

**Table 6.10**

*Summary of example 1: When the creative process blocks, take a break and step away from work*

<b>Antecedent (how things were before the incident)</b>	It's 8 p.m. Everyone is tired. Your eyes are burning and you have two options. Either you say, I don't care. We all work until midnight until we find an idea. Or you manage to convince them to go like all, Let's go grab a beer.
<b>The experienced event (action)</b>	And actually, while we're having a beer and renting and go, yeah. One hour later, we'd be like, Oh, but you know what, actually? And then literally you bring some papers, you start doing stuff because you widen you reduce the stress...
<b>The consequences (what happened or did not happen because of the event)</b>	A kind of like switch gears and we would, yeah, just relax a bit and some ideas would emerge from this, but that worked for all the projects...

#### 6.2.1.4 Tension and Conflict lead to positive outcome

Also, Tension and Conflict incident can lead to positive consequences as the following:

- *Example 1*

*“Okay. One thing maybe I should say is that through the fights within some of the guys within the team, some really great ideas came up and this one is this one could be a whole book just on itself, is how when we're facing adversity, when we're facing a dangerous solution, our brains are starting to use more of the reptilian part of the war, like the instinct and the survival part of it. And because these guys were really like yelling at each other, and I was like, Come on, what are you going to do? Are you going to punch each other? And it was like making jokes about this. And one of the guys was like, I'm not going to punch him. I'm going to use it. And he went into a long rambling about like, I'm going to use this. And I was like. That's actually good. You know, and it came from this because you unlock your brain again to do. **I don't care anymore. And then I don't care anymore attitude is also somehow where you become more creative. But don't quote me too much on this because I don't want to people believe that, oh, yeah, you should fight with each other, and then you're going to have better ideas. But it's just to say that some stuff sometimes happened from this tension.**” By Mr. Hadrien*

**Table 6.11**

*Summary of example 1: Tension and Conflict*

<b>Antecedent (how things were before the incident)</b>	Through the fights within some of the guys within the team, some really great ideas came up and that's this one is this one could be a whole book just on itself. Is that how when we're facing adversity, when we're facing a dangerous solution, our brains are starting to use more of the reptilian part of the war, like the instinct and the survival part of it.
<b>The experienced event (action)</b>	These guys were really like yelling at each other and I was like, Come on, what are you going to do? Are you going to punch each other? And it was like making jokes about this. And one of the guys was like, I'm not going to punch him. I'm going to use it. And he went into a long rambling about like, I'm going to use this. And I was like. That's actually good. You know, and it came from this because you unlock your brain again to do. I don't care anymore...
<b>The consequences (what happened or did not happen because of the event)</b>	Some stuff and ideas sometimes happened from this tension, and I don't care anymore attitude is also somehow where you become more creative.

#### **6.2.1.5 Financial Constraints and Unexpected Constraints lead to Positive consequences**

- **Example 1**

*“I must emphasize first that we need to maintain a high level of creativity at all times. **In the past, we faced the challenge of having a limited budget, and our promotional efforts were hindered by transportation restrictions.** How can we generate more recognition and awareness for ourselves? Allow me to illustrate with the example of our franchise—a truly innovative product. In fact, I would like to share the story of how its creative concept emerged despite **our financial constraints.**”*

*Even if you are already familiar with our brand, imagine researching the price of billboards. As you discover that billboard advertising for a month costs approximately 3 million baht, you realize how expensive it is. However, unlike others who cannot afford such high costs, we managed to allocate 3*

million baht for a billboard. Unfortunately, this investment alone did not generate sufficient awareness. Therefore, we decided to reevaluate and explore other options. Our solution was to transform billboards into posters. We chose to utilize posters exclusively, which proved to be a cost-effective alternative. By doing so, we significantly reduced our daily expenses. How did we achieve this? We devised a bundled package that encouraged people to display our posters. This approach not only proved to be economical but also maximized visibility. Digging deeper, we continuously asked ourselves 'why?' and applied design thinking principles. This led us to embark on a pilot phase, followed by user testing. Once the testing phase was successfully completed, we emerged with our first franchise branch, achieved with a 3,000 baht investment. Presently, we have expanded to 1,000 branches, investing a total of 3 million baht. **Remarkably, this approach has garnered greater awareness compared to a billboard, underscoring the significance of stimulating creativity. I firmly believe that success lies not in the amount of money invested but in our ability to adapt and innovate. As we face the constraints of limited funds, we cannot afford extravagant marketing campaigns that require millions of baht. Therefore, we must explore alternative strategies to achieve similar results without burdening our financial resources. Failure to do so would only result in detrimental consequences.**” By Mr. Moshi



Table 6.12

Summary of example 1: Financial Constraints and Unexpected Constraints

<p><b>Antecedent</b> (how things were before the incident)</p>	<p>I must emphasize first that we need to maintain a high level of creativity at all times. <b>In the past, we faced the challenge of having a limited budget, and our promotional efforts were hindered by transportation restrictions.</b> How can we generate more recognition and awareness for ourselves? Allow me to illustrate with the example of our franchise—a truly innovative product. In fact, I would like to share the story of how its creative concept emerged despite <b>our financial constraints.</b></p>
<p><b>The experienced event</b> (action)</p>	<p>We managed to allocate 3 million baht for a billboard. Unfortunately, this investment alone did not generate sufficient awareness. Therefore, we decided to reevaluate and explore other options. Our solution was to transform billboards into posters. We chose to utilize posters exclusively, which proved to be a cost-effective alternative. By doing so, we significantly reduced our daily expenses. How did we achieve this? We devised a bundled package that encouraged people to display our posters. This approach not only proved to be economical but also maximized visibility. Digging deeper, we continuously asked ourselves 'why?' and applied design thinking principles. This led us to embark on a pilot phase, followed by user testing. Once the testing phase was successfully completed, we emerged with our first franchise branch, achieved with a 3,000 baht investment. Presently, we have expanded to 1,000 branches, investing a total of 3 million baht.</p>
<p><b>The consequences</b> (what happened or did not happen because of the event)</p>	<p><b>Remarkably, this approach has garnered greater awareness compared to a billboard, underscoring the significance of stimulating creativity.</b> I firmly believe that success lies not in the amount of money invested but in <b>our ability to adapt and innovate.</b> As we face the constraints of limited funds, we cannot afford extravagant marketing campaigns that require millions of baht. Therefore, we must explore alternative strategies to achieve similar results without burdening our financial resources.</p>

#### 6.2.1.6 New technology use constraints lead to Positive consequences

- *Example 1*

*“...And unfortunately, what tends to happen is those that don't get it, those that have the decision power. So, they'll make a decision based on what they think is right without knowing that it's right. So, what we did is we took a completed design for a hotel room, and we put it into a virtual reality system and created a virtual reality hotel mockup room. So, this was using quite simple*

*technology. We used Unreal Engine and a headset, VR headset. And what it allowed us to do was to show the client exactly what the room would look like. It had not photorealistic, but almost photorealistic textures, patterns, lighting, shadows, that sort of thing. And they were able to put the headset on and walk around the room and understand everything. But because we hadn't built anything yet in terms of a mockup room, they could still make big changes very easy. So they could say, Actually, you know what, I don't want to have the door to the bathroom here. I want to have it over here or I want to add an extra door to the bathroom. Just very, very basic things like that become very easy to do and It becomes possible to do them without spending money, basically. **And so, as a result of that, we have a new service that offers to our clients, which is a virtual reality mock-up service.** And it doesn't have to be hotel rooms, it can be any space, and we can take any 3D model from any designer and just convert it into that virtual reality format for the clients to experience. So, in this project, the triggers really were the new technology and wanting to understand how to make it work for us. Right. So, I mean, virtual reality headsets have been around for a while and it's always been mostly used for gaming. Yes, there are some business applications for it, **but trying to understand how to link the virtual reality headset that we know from gaming with a business need filling that gap that that was the challenge and that was the ability to. To be the ones to define how we close that gap is something that really became a big impetus for getting that solution together.**" By Mr. Pawel*

Table 6.13

Summary of example 1: New technology use constraints

<b>Antecedent (how things were before the incident)</b>	So, what we did is we took a completed design for a hotel room, and we put it into a virtual reality system and created a virtual reality hotel mockup room. <b>So, this was using quite simple technology. We used Unreal Engine and a headset, VR headset. And what it allowed us to do was to show the client exactly what the room would look like...</b>
<b>The experienced event (action)</b>	In this project, the triggers really were the new technology and wanting to understand how to make it work for us. Right. So, I mean, virtual reality headsets have been around for a while and it's always been mostly used for gaming. Yes, there are some business applications for it, <b>but trying to understand how to link the virtual reality headset that we know from gaming with a business need filling that gap that that was the challenge and that was the ability to. To be the ones to define how we close that gap is something that really became a big impetus for getting that solution together.</b>
<b>The consequences (what happened or did not happen because of the event)</b>	<b>And so, as a result of that, we have a new service that offers to our clients, which is a virtual reality mock-up...</b>

### 6.2.1.7 When faced with disruption, the ability to adapt becomes crucial

- *Example 1*

*“Before... there was an issue of energy disruption from the use of petroleum based as renew and new energy, Originally, we would have worked quite systematically and had a clear framework to deliver to the business. With the innovation institutes we would divide according to the missions of each business unit. **But when this trend comes (Energy disruption), it makes us have to adapt to prepare...** In fact, every beginning of the year we have a workshop to summarize the work we did last year compared with the year before... is there anything that should be developed? or something that hasn't been done yet, then come and review the SWOT and then review the roadmap to be aligned with the direction of our organization.*

*So, we have a goal that we will create new innovations or products that have never been seen before... that may help solve pain points in everyday life, at home or at gas stations. **The principle of the team will do in operation, we look if the operation or the petroleum-based... there might be something for disruptive.** Then we try to look at pain points. We mainly use brainstorming, come and get the topic, share it, find out the details, and come to report the progress, then decide together, use the method of expressing opinions and voting in order to move forward in the next step. **The innovation that we created that year, we received the first prize. Innovation award in the field of spark ideas. Then we can register 1 patent. This one, I really feel the potential of people who can adjust anything at any time, it's quite obvious that this one, having creativity and team involvement allows us to reach our goals. Let's succeed together.**" By Ms. Pawinee*

**Table 6.14**

*Summary of example 1: When faced with disruption, the ability to adapt becomes crucial*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>Before... there was an issue of energy disruption from the use of petroleum based as renew and new energy, Originally, we would have worked quite systematically and had a clear framework to deliver to the business. With the innovation institutes we would divide according to the missions of each business unit. <b>But when this trend comes (Energy disruption), it makes us have to adapt to prepare...</b></p>
<p><b>The experienced event (action)</b></p>	<p>In fact, every beginning of the year we have a workshop to summarize the work we did last year compared with the year before... is there anything that should be developed? or something that hasn't been done yet, then come and review the SWOT and then review the roadmap to be aligned with the direction of our organization. So, we have a goal that we will create new innovations or products that have never been seen before... that may help solve pain points in everyday life, at home or at gas stations. <b>The principle of the team will do in operation, we look if the operation or the petroleum-based... there might be something for disruptive.</b> Then we try to look at pain points. We mainly use brainstorming, come and get the topic, share it, find out the details, and come to report the progress, then decide together, use the method of expressing opinions and voting in order to move forward in the next step.</p>

<p><b>The consequences (what happened or did not happen because of the event)</b></p>	<p><b>The innovation that we created that year, we received the first prize. Innovation award in the field of spark ideas. Then we can register 1 patent. This one, I really feel the potential of people who can adjust anything at any time, it's quite obvious that this one, having creativity and team involvement allows us to reach our goals. Let's succeed together.</b></p>
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### 6.2.1.8 A new discovery led to networking collaboration

- *Example 1*

*“Give an example of an innovation that has come out concretely. That is, we have developed a bandage made from bio-cellulose. We sell to hospitals. This is also one of the products that researchers have developed until they can be commercialized. And most importantly, the products we make must be new, not copying anyone who is in our company ...so it must have at least an IP to confirm that it is a product that is new on a global scale. No one had ever done it before.*

*To achieve success, we created a synergy that allows for commercialization of the destination group. Networking collaboration with partners such as hospitals, research institutions, and our existing partners is crucial for driving innovation and making our ideas a success.” By Ms. Vivan*

**Table 6.15**

*Summary of example 1: A new discovery*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>Give an example of an innovation that has come out concretely. That is, we have <b>developed a bandage made from bio-cellulose</b>. We sell to hospitals. This is also one of the products that researchers have developed until they can be commercialized</p>
<p><b>The experienced event (action)</b></p>	<p>We sell to hospitals. This is also one of the products that researchers have developed until they can be commercialized. And most importantly, the products we make must be new, not copying anyone who is in our company ...so it must have at least an IP to confirm that it is a product that is new on a global scale. No one had ever done it before.</p>

<p>The consequences (what happened or did not happen because of the event)</p>	<p>We created a synergy that allows for the commercialization of the destination group. Networking collaboration with partners such as hospitals, research institutions, and our existing partners is crucial for driving innovation and making our ideas a success.</p>
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## 6.2.2 Negative Critical Incidents

Moreover, team leaders reported that *unexpected constraints* also resulted in negative outcomes, including:

### 6.2.2.1 Unexpected constraints lead to negative consequences

- *Example 1*

*“Yeah. Okay. So we had a client. That was big in the FMC, the fast-moving consumer goods space. This was a big, big project. You know, lots and lots of sales, but the extremely demanding client and very extremely demanding. I mean, not just in the amount of work that was being requested. Like we basically have three people full-time client, but also that their direction was very unclear and it seemed like things that they like before. Their direction would change basically from week to week, and that made it very difficult for the team. So, it created an environment. In this project. Four people were. They didn't know what was going to go well and they end up trying to be safe. So, it reduces the ability to be creative because. If you're getting told every week that something is wrong, you correct it the next week and then you're told the next time it's wrong. It's really difficult on a team.*

*I think there are a number of factors that would make this project different from the good example I discussed earlier and a lot of these were factors outside of our team's control. So, the management on the brand management side, I think was not handled very well. So that made the client*

*more aggressive and irritable. Then we would typically start our project on so that it impacts it negatively. **And the other factor is the sheer volume of work that was required and in the extremely short. So, this was a really high tide pressure and high output requirements, which in some ways can stimulate creativity. But in other ways, combined with the aggressive attitude of the client, it really reduced creativity. So, It reduces the classical creativity, increases increased creativity and comes up with how do we. How do we make this the most shallowly creative thing possible so we can put the last time on that part and just get the work out so we can focus on the next thing that's coming up very quickly from the same client and just repeat that cycle. It was difficult. It was really difficult. And. **But it just because there wasn't time for it wasn't a lot of time for brainstorming or the design thinking. Because it just had to focus on output.*****” By Mr. Liam

**Table 6.16**

*Summary of example 1: Unexpected constraints lead to negative consequences*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>Yeah. Okay. So we had a client. That was big in the FMC, the fast-moving consumer goods space. This was a big, big project. You know, lots and lots of sales, but the extremely demanding client and very extremely demanding. I mean, not just in the amount of work that was being requested. Like we basically have three people full-time client, but also that their direction was very unclear and it seemed like things that they like before. Their direction would change basically from week to week, and that made it very difficult for the team. So, it created an environment. In this project. Four people were. They didn't know what was going to go well and they end up trying to be safe. So, it reduces the ability to be creative because. If you're getting told every week that something is wrong, you correct it the next week and then you're told the next time it's wrong. It's really difficult on a team.</p>
<p><b>The experienced event (action)</b></p>	<p>I think there are a number of factors that would make this project different from the good example I discussed earlier and a lot of these were factors outside of our team's control. So, the management on the brand management side, I think was not handled very well. So that made the client more aggressive and irritable. Then we would typically start our project on so that it</p>

	<p>impacts it negatively. <b>And the other factor is the sheer volume of work that was required and in the extremely short. So, this was a really high tide pressure and high output requirements, which in some ways can stimulate creativity.</b> But in other ways, combined with the aggressive attitude of the client, it really reduced creativity. So, It reduces the classical creativity, increases increased creativity and comes up with how do we. How do we make this the most shallowly creative thing possible so we can put the last time on that part and just get the work out so we can focus on the next thing that's coming up very quickly from the same client and just repeat that cycle. It was difficult. It was really difficult.</p>
<p><b>The consequences (what happened or did not happen because of the event)</b></p>	<p><b>But it just because there wasn't time for it wasn't a lot of time for brainstorming or the design thinking. Because it just had to focus on output.</b></p>

### 6.2.2.2 One person destroys the dynamic of a team

- *Example 1*

*“I have other companies. Pr agency. Is it different video games. Yeah. So it was a bad project. **And the number one reason I can tell you is ego and pride. And. Me, me, me, me, me. It's my IDea, it's my game. It's my. Or I don't like this. I don't want to do it. ...But within the team there was a big problem with. The guys keep changing every two weeks, even though we're telling them, please focus on this. And after two weeks, they were like, Yeah, but I don't like it. And I was like, It's okay. It's just a little part of the bigger picture. So two people that actually believe it or not, we didn't fire them the left by their own. So remember what I said previously about the casting importance of casting. There were one of them was recommended by a guy that we worked still work with. First week, the guy was amazing, I think really happy to join us and everything But then suddenly we realized that a guy was a solo dev. He loves to do things on his own. He's not a team team, a team player. So we talk about cohesion and everything and we basically spend multiple months trying***



to fix everything he was breaking. You know, because you would change all the time. So we couldn't come up with creative solutions. **Every time we come up with something creative, it would immediately his energy would pull everyone down**, you know, and you're going to a meeting, you're talking to five great people. That's my role to keep the things going. And the guy was like, Well, it's never going to work because blah, blah, blah and bickering, grunting, this is how it sounds. And you have people from the first minutes they go, Oh yeah. And then it could be like, fine, like this. And they go, Oh, wow, they could be flying like this. It's shit. And you're like, Whoa, okay. So it destroys the dynamic, the cross-pollination process of, like, throw me an idea, we'll throw it back to you. And I will never say shit. I mean, even though we do talk like this to each other. Yeah, let's be honest. We do sometimes mock each other because we trust each other. We got to say, well, it's a really shitty idea. And then we laugh and we go like, okay, well then come up with something better, you know? So we would always authorize ourselves to go and imagine.

**But this guy was just breaking the kind of the, the dynamic between the people to the point that, yeah, people then said, I don't want to work with him.** And I was like, We don't have a choice to finish this. And he's part of the team. And so it became more of a HR problem, you know, than than a creative problem. The process were the same. The strategy and everything was the same. The, the, the prototypes were working. **So. It pulled the whole team down until the two of them exploded. And then it brought the morale super low. And so we took the decision to kill the project.**” By Mr. Hadrien

Table 6.17

*Summary of example 1: One person destroys the dynamic of a team*

<p><b>Antecedent (how things were before the incident)</b></p>	<p>I have other companies. Pr agency. Is it different video games. Yeah. So it was a bad project. <b>And the number one reason I can tell you is ego and pride. And. Me, me, me, me, me. It's my IDEA, it's my game. It's my. Or I don't like this. I don't want to do it.</b> ...But within the team there was a big problem with. <b>The guys keep changing every two weeks, even though we're telling them, please focus on this. And after two weeks, they were like, Yeah, but I don't like it. And I was like, It's okay. It's just a little part of the bigger picture.</b></p>
<p><b>The experienced event (action)</b></p>	<p>So two people that actually believe it or not, we didn't fire them the left by their own. So remember what I said previously about the casting importance of casting. There were one of them was recommended by a guy that we worked still work with. First week, the guy was amazing, I think really happy to join us and everything But then suddenly we realized that a guy was a solo dev. He loves to do things on his own. He's not a team team, a team player. So we talk about cohesion and everything and we basically spend multiple months trying to fix everything he was breaking. You know, because you would change all the time. So we couldn't come up with creative solutions. <b>Every time we come up with something creative, it would immediately his energy would pull everyone down,</b> you know, and you're going to a meeting, you're talking to five great people. That's my role to keep the things going. And the guy was like, Well, it's never going to work because blah, blah, blah and bickering, grunting, this is how it sounds. And you have people from the first minutes they go, Oh yeah. And then it could be like, fine, like this. And they go, Oh, wow, they could be flying like this. It's shit. And you're like, Whoa, okay. So it destroys the dynamic, the cross-pollination process of, like, throw me an idea, we'll throw it back to you...</p>
<p><b>The consequences (what happened or did not happen because of the event)</b></p>	<p><b>But this guy was just breaking the kind of the, the dynamic between the people to the point that, yeah, people then said, I don't want to work with him.</b> And I was like, We don't have a choice to finish this. And he's part of the team. And so it became more of a HR problem, you know, than than a creative problem. The process were the same. The strategy and everything was the same. The, the, the prototypes were working. So. It pulled the whole team down until the two of them exploded. <b>And then it brought the morale super low. And so we took the decision to kill the project."</b></p>

### 6.2.2.3 Not having right people in team composition

- *Example 1*

*“Okay. Yeah. The next one is a project, a boutique hotel which is quite recent. **We didn't form a strong team before we went to see the client** and we sent someone who. Was not straight out of school, but not that experienced, but very keen. And they went and got the brief from the client and thought they understood what the client wanted. **We didn't have enough senior people on the project**, but the designer was very keen, very enthusiastic, quite creative, and had a support team but **didn't follow our process**. So, we didn't have a proper design review. They didn't have they didn't use the resources of the firm and the knowledge that we had in the firm they thought they were smart and could do it by themselves. Then they went and presented to the client this hotel and that, very proud of it. And we had never reviewed it internally. **So, it missed out on this designer process, and it was horrible** and we had to. Then go to the client and say, I think we can do a nicer design, we need another month and we're going to put more people on to the project. And we had to redo the project. The client didn't really complain, but we knew that it wasn't very good. So, I guess. It was not having the balance on the table. Not following process. They worked alone. **They didn't use the knowledge bank that's within the company**. They didn't have the experience or knowledge of that kind of project. So, they didn't use the expertise that we have and they didn't follow our process. They didn't have the review before and they didn't work as a team.”* By Mr. Scott

Table 6.18

Summary example 1: Not having right people in team composition

<b>Antecedent (how things were before the incident)</b>	Okay. Yeah. The next one is a project, a boutique hotel which is quite recent. <b>We didn't form a strong team before we went to see the client</b> and we sent someone who. Was not straight out of school, but not that experienced, but very keen. And they went and got the brief from the client and thought they understood what the client wanted. <b>We didn't have enough senior people on the project...</b>
<b>The experienced event (action)</b>	<b>We didn't have a proper design review. They didn't have they didn't use the resources of the firm and the knowledge that we had in the firm they thought they were smart and could do it by themselves.</b> Then they went and presented to the client this hotel and that, very proud of it. And we had never reviewed it internally. <b>So, it missed out on this designer process, and it was horrible</b> and we had to. Then go to the client and say, I think we can do a nicer design, we need another month and <b>we're going to put more people on to the project. And we had to redo the project.</b> The client didn't really complain, but we knew that it wasn't very good. So, I guess. It was not having the balance on the table. Not following process. They worked alone.
<b>The consequences (what happened or did not happen because of the event)</b>	<b>They didn't use the knowledge bank that's within the company. They didn't have the experience or knowledge of that kind of project. So, they didn't use the expertise that we have and they didn't follow our process. They didn't have the review before and they didn't work as a team.</b>

#### 6.2.2.4 Resistance to change

- *Example 1*

*“Yeah. Drafting software. In the last ten years, there's been a drive to move to something that's called **Bim Bim**. And that stands for building information modeling. And the big difference between AutoCAD and BIM software is that in AutoCAD, if you draw a plan, it's like drawing a plan in in PowerPoint, you just draw a line. It's a line. It's not it doesn't have any information. In the, like, just a line or it's just a square. That is AutoCAD. Now, with BIM, every line you draw has information. So, a line is a wall, and a wall has a thickness and a thickness that's made up of things like maybe there's a steel core, maybe there's some gypsum, maybe there's some insulation. You can*

*define all of this as your drawing, your project. All right. So it's a lot more like a database than a drawing. Anyway, that's detail about BIM. **The point is, most interior designers don't think in terms of BIM. They don't think in terms of databases. They think in terms of creativity. What should space look like? How can I communicate what I want that space to look like so that it can be built? The on the other hand, those people that are pushing for bim, because it can save an incredible amount of time for interior designers because it's parametric.** So you can say, if I move this wall here, it will update all of the drawings for that project, for example. Also, because it's a database, I can put a cost per square meter or per linear meter of every material that I use in there. And it can work out exactly how much it should cost in terms of materials to build that space.*

*So, the old way to do it would be to finish the drawing and then a QC would look through the drawing, measure everything up, and then make a spreadsheet, and then spreadsheet would give the number. But in the new BIM system, it's all real time automated and it's much more powerful, much faster if you learn how to use it properly. But it has a very steep learning curve. So, two different camps. And usually the good designers, the creative designers are on the camp that don't want to change because they don't see BIM as helping them be being creative. They see BIM as just helping to do drawings. So, the idea that we had was to set up a business to do BIM as a service so the designers would share with us their 3D model, which they usually use something like sketch out, which is not really BIM at all, and then we can convert that into a BIM model and documentation for them. So, in terms of a creative idea to solve*

*a problem, I think it hits all the right points and it was good. We had a few projects that we did, but the reason it failed is that most designers don't want to. They all want to do their own drawings, even if it means they're going to spend. Lots and lots of time doing it and having lots of mistakes. They would rather do it themselves than to have someone else to do it even if it saves the money. And this is something that we didn't expect. So that was a project that wasn't successful and not successful because I guess we didn't expect that result.” By Mr. Pawel*

**Table 6.19**

*Summary of example 1: Resistance to change*

<p><b>Antecedent</b> (how things were before the incident)</p>	<p><b>The point is, most interior designers don't think in terms of BIM. They don't think in terms of databases. They think in terms of creativity. What should space look like? How can I communicate what I want that space to look like so that it can be built? The on the other hand, those people that are pushing for bim, because it can save an incredible amount of time for interior designers because it's parametric. So you can say, if I move this wall here, it will update all of the drawings for that project, for example. Also, because it's a database, I can put a cost per square meter or per linear meter of every material that I use in there. And it can work out exactly how much it should cost in terms of materials to build that space.</b></p>
<p><b>The experienced event</b> (action)</p>	<p>So, the old way to do it would be to finish the drawing and then a QC would look through the drawing, measure everything up, and then make a spreadsheet, and then spreadsheet would give the number. But in the new BIM system, it's all real time automated and it's much more powerful, much faster if you learn how to use it properly. But it has a very steep learning curve. So, two different camps. And usually the good designers, the creative designers are on the camp that don't want to change because they don't see BIM as helping them be being creative. They see BIM as just helping to do drawings. So, the idea that we had was to set up a business to do BIM as a service so the designers would share with us their 3D model, which they usually use something like sketch out, which is not really BIM at all, and then we can convert that into a BIM model and documentation for them. So, in terms of a creative idea to solve a problem, I think it hits all the right points and it was good. We had a few projects that we did, but the reason it failed is that most designers don't want to They all want to do their own drawings...</p>

<b>The consequences (what happened or did not happen because of the event)</b>	They all want to do their own drawings, even if it means they're going to spend. Lots and lots of time doing it and having lots of mistakes. They would rather do it themselves than to have someone else to do it even if it saves the money. And this is something that we didn't expect. So that was a project that wasn't successful and not successful because I guess we didn't expect that result.
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#### 6.2.2.5 Hierarchy culture

- *Example 1*

*“...Unsuccessful, we do community of practice, it doesn't mean every COP success, even if we deployed with the same process, it depends on whether we choose members to come in, now with the fact that some community members have the elders come in because they are not community, I have to think that everyone must have the same levels. Who has had some experience and has this experience, how to solve it, and then it's about the group, they will help each other to come to the conclusion that this should be a solution for the younger person who has the problem to try to take it because he took it then success came back and would come and tell the group that he went to do success or not success, it should be like this, but **it appears that there will be many community of practice that we have very senior because he is very senior, he is like setting the table, he will be the leader of meetings like this, it will become a non-extension of new concepts or methods, he will be the one who cuts out that we have to do 1 2 3 4, this is why he said that it was caused by the recruitment of people into the community is not detailed enough to screen people. It is not good. It will be an obstacle for the team that can't continue to run. If you don't use it, it will go back to the meeting. Can you imagine? It's an obstacle. How does it affect creative thinking?***

*If the senior person comes up, he will sit at the head of the table. Immediately, in the function of people who run km, sometimes we are difficult, because sometimes he is more senior than us, once again who used to have a high level, he is a senior VP, coming in a position much higher than the younger people. Really, we are unable to do anything, he has a duty to cut 1 2 3 4...”* By Ms. Noi

**Table 6.20**

*Summary of example 1: Hierarchy culture*

<b>Antecedent (how things were before the incident)</b>	...Unsuccessful, we do a community of practice, it doesn't mean every COP success, even if we deployed with the same process, it depends on whether we choose members to come in, now with the fact that some community members have the elders come in because they are not community
<b>The experienced event (action)</b>	it appears that there will be many community of practice that we have very senior because he is very senior, he is like setting the table, he is a regular meeting, he will be the leader of meetings like this, it will become a non-extension of new concepts or methods, he will be the one who cuts out that he has to do 1 2 3 4
<b>The consequences (what happened or did not happen because of the event)</b>	If the senior person comes up, he will sit at the head of the table. Immediately, in the function of people who run km, sometimes we are difficult, because sometimes he is more senior than us, once again who used to have a high level, he is a senior VP, coming in a position much higher than the younger members. Really unable to do anything, he has a duty to cut 1 2 3 4...

### 6.2.3 Sequence of critical incidents

Next, the sequence of critical incidents reported by team leaders including:

#### 6.2.3.1 Initial failure might lead to more creativity

- *People misunderstood in team creative process (Negative incident)*
- *The Capability of leader to be flexible (Positive incident)*

*“So, I was working recently with an organization that. Um, as I said, wanted to create a new business, a new digital business, and we were creating a brand for this business and. You know, the we were going to hire a branding*



agency. And what I was managing was creating the value proposition for the organization. But then we needed to come up with a name. And. You know, for me. There's when you have a big group. So, there's about 50 people in this organization and they're all trying to create this new service. And **they were all very excited about creating the brand.** And I said, Okay, well, why don't we have a Competition for people to share some ideas about what they think the brand should be. And then we'll take those ideas and we'll give them to the branding agency. **But what happened was they misunderstood. And so, what they did was they created a competition to create a name for the brand, not ideas for the brand.** And the thing is. You know, creativity is great, but it doesn't mean. Great execution. Right. So, creativity is sometimes messy and it's sometimes rich in detail, but it doesn't mean it's always the right thing. So, what I had was this 50 people created. I think 150 names for this new brand. And they weren't very good because that's ideas. But what you need is you need experts to execute.

Right. So. What I had was like a lot of names, which wasn't very useful for me or the branding agency, because what the branding agency needed to know is what is the. What is the meaning of this organization? What's the meaning of this brand? So, but the whole team is very excited because they want they all wanted to name the company. So, **I had a challenge. How do I how do I get what I need, which is what is the meaning of the brand to this group of people? But how do I also keep them excited about their contribution without having to choose one of their names? Because the names weren't very good.** So, what I did was I did a workshop. Kind of very basic design thinking

*workshop. I said, okay, here's 150 names you came up with. We're going to cluster these names based on theme. It's a very typical kind of synthesis and clustering analysis. Put all the names that are kind of related together into groups. Label those groups. So if you have a bunch of names that have the word happiness or the meaning is happiness, then let's put a label called happiness up there. And once we have that. So we spend about an hour. They grouped all these names. They started to find the high level themes. We ask them to break down those themes. Into more meaningful content. So what is happiness mean to you? What does technology mean to you? And then let's prioritize the ones that we think are most important for our brand.*

*So at the end of about an hour, we had about **ten different themes where we had grouped all of these 150 names. And then from these themes, we actually had a series of attributes related to each theme.** And those attributes we could then take and give to the branding agency and say, branding agency, this is what our brand is all about, right? This is the meaning of our brand. And then they, as experts, could go and create a really great brand name for us. So the creative part was basically so this was a it wasn't a generative exercise because they'd already created the names, **but the creativity was in How do we get this group of people to go deeper? Right. So how do how do we get them to kind of consolidate? And then go deep. And it's in. Going deeper into the themes, for example, that's where we could really start to understand the key meaning of what this brand was supposed to be for them. So they had a really good time. So they and that's always important for creativity, is that people feel excited, they feel like they can contribute. So they have to feel safe that***

*it's okay for them to have ideas. And yeah, that's a recent example I can share.”* By Mr. Gordon

**Table 6.21**

*Summary of example 1: Initial failure might lead to more creativity*

<p><b>Antecedent (how things were before the incident)</b></p>	<p><b>But what happened was they misunderstood. And so what they did was they created a competition to create a name for the brand, not ideas for the brand.</b> And the thing is. You know, creativity is great, but it doesn't mean. Great execution. Right. So creativity is sometimes messy and it's sometimes rich in detail, but it doesn't mean it's always the right thing. So what I had was this 50 people created. I think 150 names for this new brand. And they weren't very good because because that's ideas. But what you need is you need experts to execute.</p>
<p><b>The experienced event (action)</b></p>	<p>So I had a challenge. How do I how do I get what I need, which is what is the meaning of the brand to this group of people? But how do I also keep them excited about their contribution without having to choose one of their names? Because the names weren't very good. So what I did was I did a workshop.</p>
<p><b>The consequences (what happened or did not happen because of the event)</b></p>	<p>Ten different themes where we had grouped all of these 150 names. And then from these themes, we actually had a series of attributes related to each theme... . Going deeper into the themes, for example, that's where we could really start to understand the key meaning of what this brand was supposed to be for them. So they had a really good time. So they they and that's always important for creativity, is that people feel excited, they feel like they can contribute. So they have to feel safe that it's okay for them to have ideas. And yeah, that's that's a recent example I can share.</p>

**Initial failure might lead to more creative (Mr. Gordon)**

- *People resisted to do the creative process, DT (Negative incident)*
- *The Capability of leader to be flexible (Positive incident)*

*“I can kind of give you a sort of a slightly yes and no answer. So I was working I was actually doing a workshop online for a client. Yeah. And it was a design thinking workshop and so had all of the structure and the exercises set up. I think it was one hour, an hour and a half long, and I was describing what we were about to do. And so we're going to ideate on some problem statements and. The one of the more outspoken people in the team. So, Mr. G.*

*Really sorry, but we've already done this type of exercise and it wasn't helpful, it wasn't useful, we didn't get any good results. And I was thinking, Oh, of course, because I didn't I didn't do it with them. So of course it wasn't very good. But they said, **no, no, no, we don't want to do that. We don't want to do that.** And then he started to explain. Why we couldn't do that and why it didn't work and why it was so challenging. So in the beginning I was thinking, Oh, this is very typical. It's always somebody, always usually somebody who's like, No, no, no, this creative stuff, it's never going to work. It's never going to try to idea thing, blah, blah, blah. We have a million ideas. But then what was interesting was. I said, okay, well, let's, let's, let's not do that then. Let's, let's, let's not do design thinking. Let's forget about it. Let's actually try to understand what's the actual problem here, right? So then we actually spent the whole session just defining problem statements like what is the actual problem we're trying to solve...*

*So. So for me, again, that's a very defining a problem. It's also a creative process. It's not what people think of as the traditional creative process, which is like come up with lots of ideas, etc.. But so I guess I'm using this as an example because. **On the one hand, what we had set out to do didn't work. We couldn't. We couldn't do what we wanted. But at the end of the day, I think we had a better result because we actually. Started to look where the actual problem was which was in defining the problem itself before we even started a solution.** So sorry. I honestly can't I'm not I'm not trying to be difficult, but I really can't think of a time when. Because I actually maybe I have a little bit of an issue with. Low, low level of creativity. Right? I feel like. **But I wouldn't necessarily***

*blame that on a low level of creativity or novel ideas. I think it's there's usually deeper issues, right? Like maybe you don't know enough about the market or maybe you didn't. Yeah. The end user. Right. So it's all about setting the right conditions up front. So I would say if you don't have novel ideas of solutions, then you may not know enough about the problem in the first place. So maybe the problem you're trying to solve isn't the right problem. It's not giving you enough information about what it is you're trying to solve. So for me, creativity. Again, it goes back to. Do we really understand the constraints? Do we really know what we've got to work with in terms of people, environment, context, competitors? So. Yeah.”*

**Table 6.22**

*Summary of example 2: Initial failure might lead to more creativity*

<b>Antecedent (how things were before the incident)</b>	I was actually doing a workshop online for a client. Yeah. And it was a design thinking workshop and so had all of the structure and the exercises set up... The one of the more outspoken people in the team. So, Mr. G. Really sorry, but we've already done this type of exercise and it wasn't helpful, it wasn't useful, we didn't get any good results. And I was thinking
<b>The experienced event (action)</b>	On the one hand, what we had set out to do didn't work. We couldn't. We couldn't do what we wanted..
<b>The consequences (what happened or did not happen because of the event)</b>	But at the end of the day, I think we had a better result because we actually. Started to look where the actual problem was which was in defining the problem itself before we even started a solution. <b>So it's all about setting the right conditions up front</b>

### 6.3 Chapter Summary

This chapter provided the contexts of critical incidents, which answered RQ2 on How is team creativity process affected by critical incidents. There are 17 types of critical incidents that can be classified into three categories: positive (related to high levels of team creativity), negative (related to low levels of team creativity), and a sequence of critical incidents. The CIT method is flexible in its approach to analysis, allowing for principles to be adapted to each unique case. A critical incident analysis typically involves examining the background before the incident, the event itself, and the resulting consequences. So, this chapter presented either general or specific categories, depending on what is more practical for the situation at hand (Butterfield et al., 2005).

Interesting results we found from CIT include constraints that can have positive and negative outcomes, tension and conflict lead to positive consequences, and initial failure might lead to be more creative. It can be confirmed our assumption that team creativity is highly dependent on the context and specific situations.

## CHAPTER 7

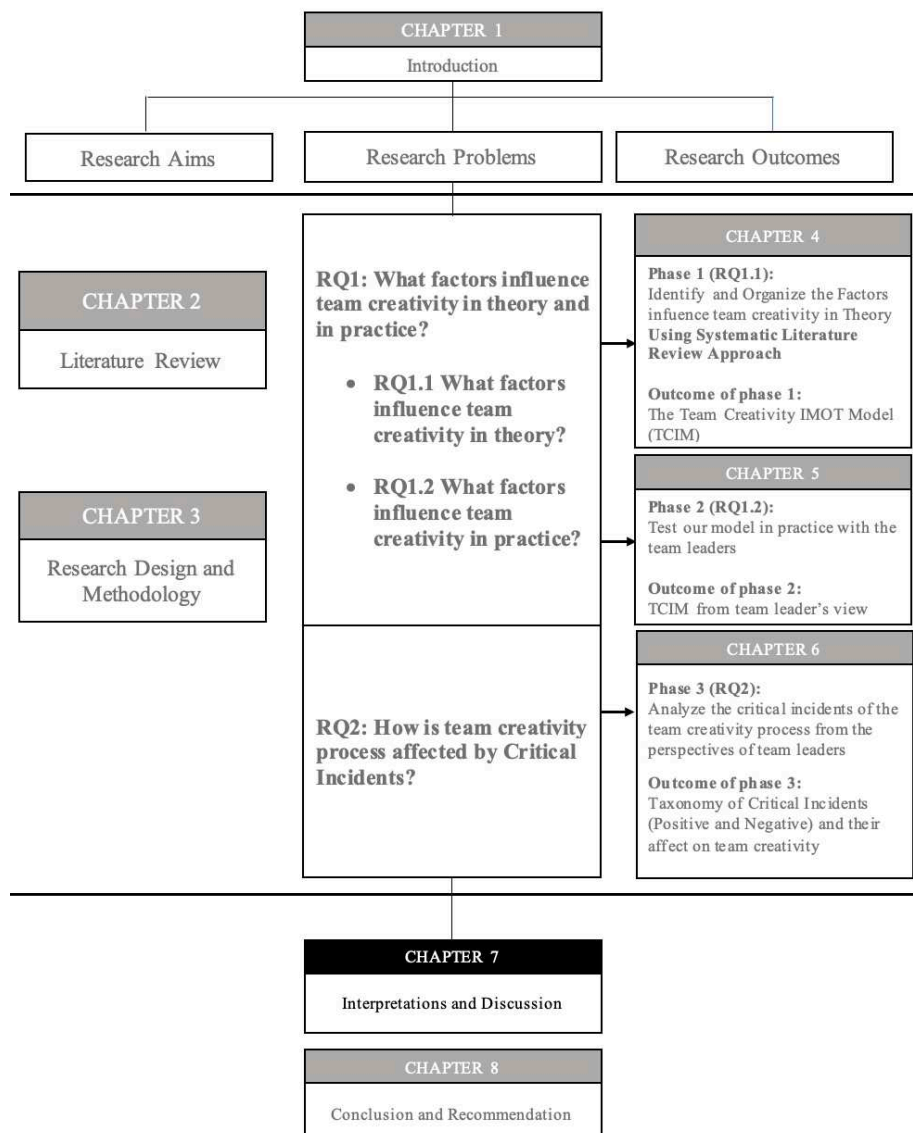
### INTERPRETATIONS AND DISCUSSION

#### 7.1 Introduction

The chapter starts by summarizing major findings from chapters 4, 5, and 6. The findings are interpreted in relation to the literature and to address two specific research questions:

**RQ1: What factors influence team creativity in Theory and in Practice?**

**RQ2: How is team creativity process affected by critical incidents?**



## 7.2 Answer to Research Question 1

**Research Question 1.** The first research question was, “What factors influence team creativity in Theory and in Practice?” We divided this question into sub-research questions RQ1.1, What factors influence team creativity **in Theory**? And RQ1.2, What factors influence team creativity **in Practice**?

### 7.2.1 For RQ1.1

In order to answer RQ1.1 on What factors influence team creativity **in Theory**? We developed a Team Creativity IMOT model (TCIM) using Systematic Literature Review approach. The findings from Systematic Literature Review (Chapter 4) identified and summarized all existing dimensions and factors that influence team creativity **in Theory**. The three researchers agreed on the classification of the Team Creativity IMOT model (TCIM), as shown in Chapter 4. There are a total of 274 factors (Table 4.2, 4.3, 4.4, 4.5) which 118 factors were identified for the Inputs dimension, 151 for Mediators, and 5 related to Time. By clustering and ranking academic impact citations, the Team Creativity IMOT model (TCIM) was reduced from 274 to a shorter version. This version highlights the top 30 highest scores for each input, mediator, and time, as shown in Figures 4.4, 4.5, and 4.6

The TCIM is the first comprehensive model about team creativity that organized by using IMO model of team effectiveness (Mathieu, 2008). This model can predict the most influential factors based on academic impact citations. The researchers and practitioners can utilize this model to fine-tune the creativity factors of their team. Moreover, researchers can study the represented factors and explore their correlation in this TCIM model. Therefore, this added value to the team creativity research field.



According to the development of TCIM model, it helped to organize and develop the field research that can see clearly what factors are most important for practitioners. This also led to sub-research question RQ1.2, What factors influence team creativity **in Practice**?

### 7.2.2 For RQ1.2

In order to answer question RQ1.2 on What factors influence team creativity **in Practice**? We apply the Team Creativity IMOT model (TCIM) with 33 team leaders by conducting in-depth interviews. During the interviews, team leaders (21 out of 33 participants) disclosed some valuable insights about the definition of team creativity. The first significant finding from these interviews is as follows:

According to the majority of definitions from the literature (84.62%) and the field (N=19), a defining attribute of team creativity is the “Ability to Develop novel and useful ideas or product or performance (by a group of people)” emphasizing as the creative output of the team. The combination of individual creativity (61.54% from the literature and 71% of team leaders) is only a part of what team creativity is. 53.85% of the literature and 61.9% of team leaders highlighted team creativity as collaboration and interaction among team members. Only about 19% from both literature and team leaders define it as a process. Therefore, there is an alignment between the team leader's beliefs and what is found in the literature.

Furthermore, both group process and creative process have been neglected in literature and in the field. One possible reason why both literature and a few team leaders may underestimate the importance of the group process and creative process is that they may be too focused on the end result. This can lead to a narrow-minded approach that fails to take into account the group dynamics and collaborative processes

that are often necessary to achieve truly creative/innovative solutions. Another possible reason is that some leaders might have a tendency to focus on individual contributions and achievements rather than recognizing the collaborative nature of creativity. So, this individualistic perspective could lead them to overlook the importance of group dynamics and the creative process in generating creative ideas.

Moreover, the interview findings revealed what are the most significant factors that influence team creativity. We analyzed the transcripts using content analysis and thematic analysis. There are both positive and negative factors that influence team creativity. Thus, two themes emerged in response to RQ1.2, including Theme 1, Factors that positively/enhance team creativity, and Theme 2, Factors that negatively/hinder team creativity. The interview findings revealed the most significant factors. These factors can be viewed as the most important for team leaders. After reviewing the factors gathered from the field, we highlighted both positive (+) and negative (-) factors in Team Creativity IMOT Model (TCIM) (See Figure 7.1, 7.2, 7.3).

It is important to note that some factors can act as both enablers (+) and hindrances (-) depending on the situation.

Figure 7.1

Team Creativity IMOT Model from team leaders (INPUTS: POSITIVE FACTORS +, NEGATIVE FACTORS -)

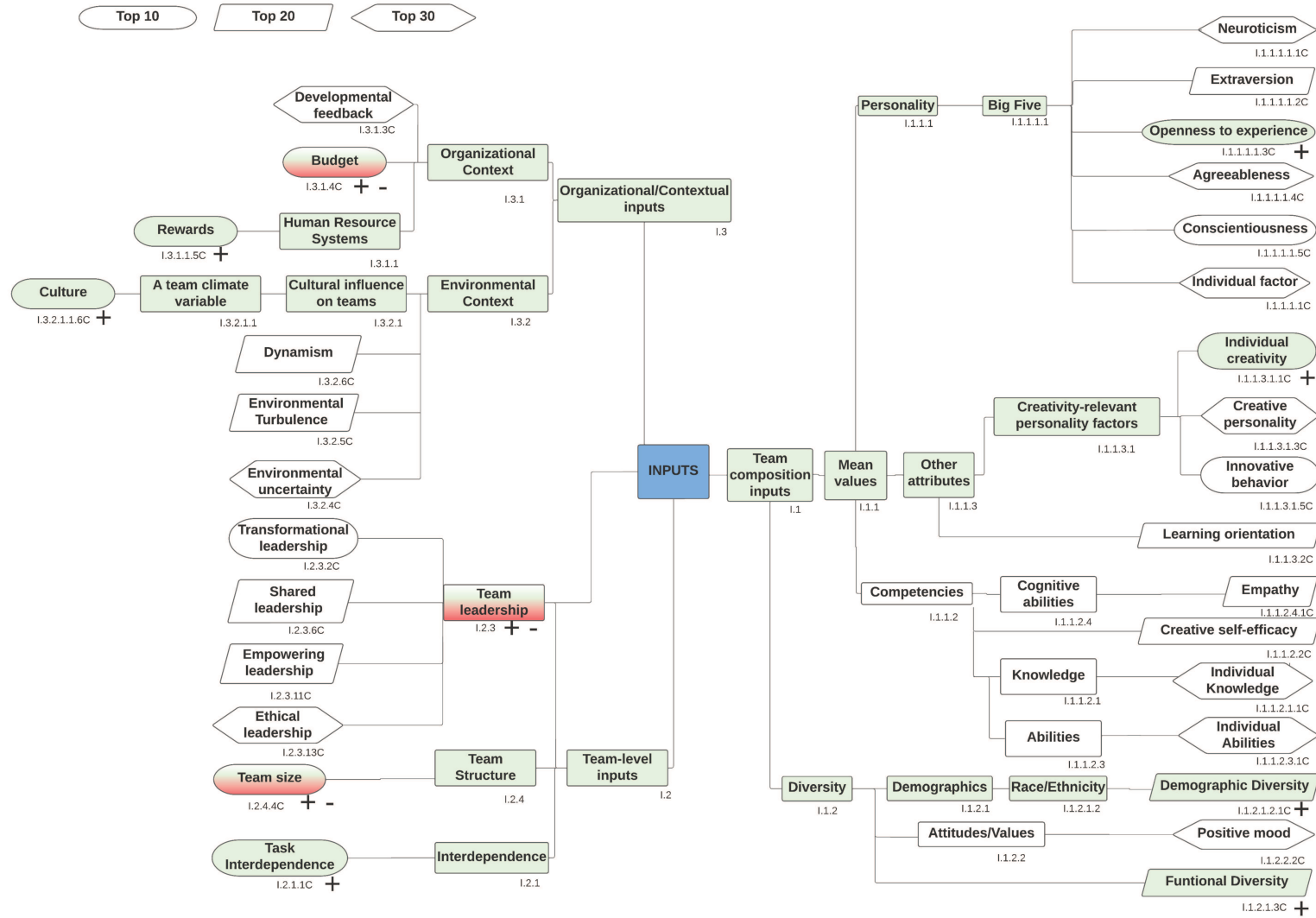
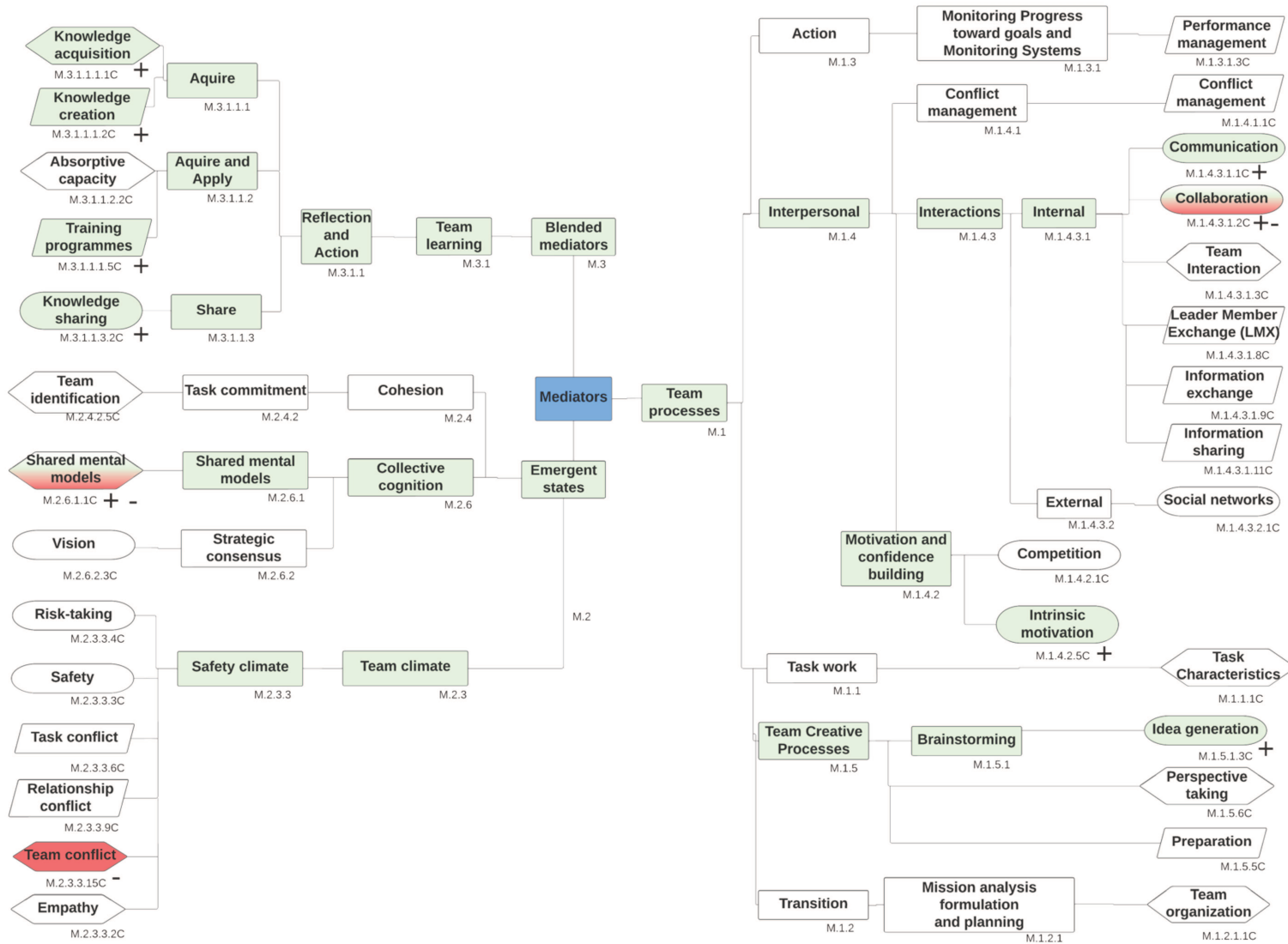


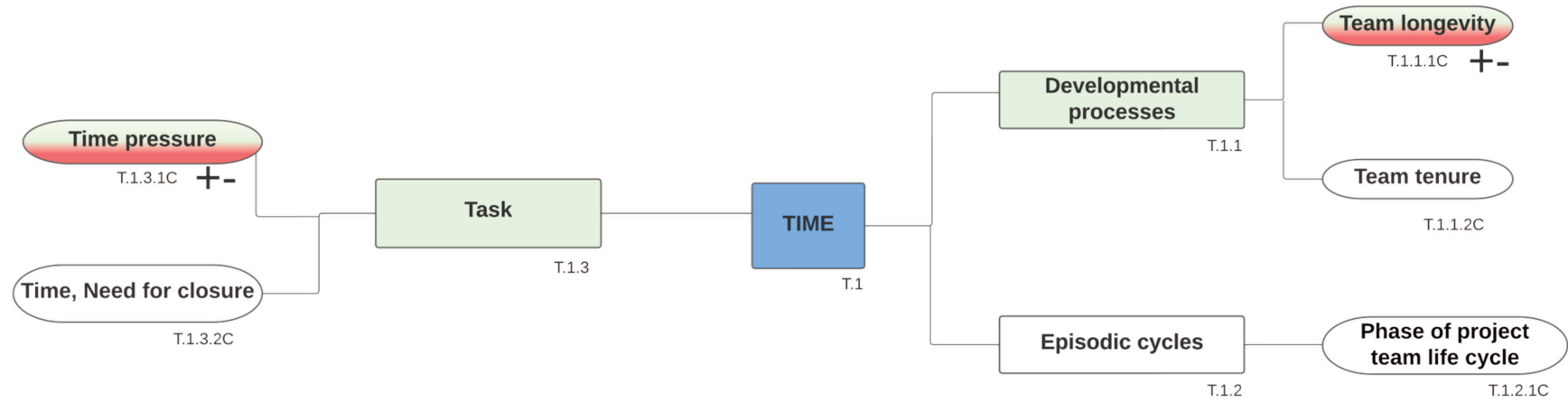
Figure 7.2

Team Creativity IMOT Model from team leaders (MEDIATORS: POSITIVE FACTORS +, NEGATIVE FACTORS -)



**Figure 7.3**

*Team Creativity IMOT Model from team leaders (TIME: POSITIVE FACTORS +, NEGATIVE -)*



As we applied the factors of TCIM from the theory, we organize the findings followed by three dimensions of TCIM (Inputs-Mediators-Output-Time).

#### 7.2.2.1 INPUTS (Positive/Enhance)

These findings are coherent with what has been published before, we add new study that confirms some previous observations of other researchers as the following:

One of the most significant dimensions that needs to be considered is **team composition** (Frequency=113, N=29), which has been emphasized by many authors (Somech and Drach-Zahavy, 2013; Pirola-Merlo and Mann, 2004) and the first top list factor for team leaders. Team creativity is a result of the collective efforts of individuals. Perry-Smith and Shalley (2014) suggest that team creativity can be enhanced by having members with diverse backgrounds and nationalities, which is supported by team leaders in the field. Add to this, assigning the right people to suitable tasks, ensuring team members have compatible personalities, fostering openness, and promoting high potential and talent can result in a well-refined and **effective team composition** (Frequency=44, N=21). The literature also refers to individual creativity as being composed of a team (Drazin et al., 1999). **Individual creativity** (Frequency=14, N=5) can also be seen as a team effort. Only five team leaders in the field mentioned it, whereas it was ranked in the top ten factors in the literature. Based on what we know from team leaders, sometimes individual creativity stems from the team leader who is an innovator. However, most of the time, ideas come from a creative individual and the team provides support to that person. It is important that creative individuals are the ones who confront the problem at hand.

Numerous research studies have identified **team diversity** (Frequency=57, N=24) as a crucial factor for enhancing team creativity. For instance, Hoever et al.

(2012) and Shin et al. (2012) predict that teams with diverse task-relevant perspectives and knowledge are more likely to exhibit higher levels of creativity. This diversity can be achieved through cross-functional or multidisciplinary teams. The diversity of highly job-related attributes, such as educational and functional background, is positively related to team creativity and performance, as consistent with interview findings. Most researchers and team leaders have found that teams with diverse functional backgrounds outperform homogenous teams in terms of creativity and innovation (Fay et al., 2006; Keller, 2001; Hülshager et al., 2009).

In addition, **goal orientation** was also mentioned by only two leaders (Frequency=4, N=2) in the field and was not an important factor in the literature. Individual goal orientation was emphasized over team goals, with learning orientation being a top factor in the literature. Learning orientation refers to the desire to improve task competence (Dweck, 1989) and was found to be positively related to creativity according to empirical evidence. On the other hand, performance goal orientation, which reflects a desire to do well and be positively evaluated by others (Phillips & Gully, 1997), was not highlighted in the top factors from the literature and was not a significant predictor of creative performance (Gong et al., 2009; Hirst, Van Knippenberg, & Zhou, 2009).

Organizational and Contextual factors such as **“Culture”** and **“Rewards”** are in the top list both from literature and from the field. These critical factors consistently impact the environment in which teams work. They affect team members' interactions, feelings towards their work and organization, and motivation to perform. An effective rewards system and positive culture can boost team cohesion, communication, productivity, and job satisfaction (Durmusoglu et al., 2014).

**Rewards** also play an essential role in motivating individuals to engage in various activities. According to interviews, most team leaders refer to their innovation awards as a positive contribution to their team creativity. From the literature, it was discovered that performance-contingent rewards given to top performers may gradually increase in intensity and lead to an increase in performance pressure, which could positively impact proactive and responsive creativity (Li et al., 2022). This suggests that there may be an inverted U-shaped relationship between performance-contingent rewards and proactive creativity, which refers to individuals who take the initiative to come up with new and innovative ideas or solutions for open problems that don't have specific requirements. On the other hand, responsive creativity refers to individuals who provide creative solutions to closed problems, such as pre-existing issues or external requirements (Unsworth, 2001). The level of creativity displayed by employees has a significant impact on their work performance (Drucker, 2012). According to expectancy theory, extrinsic rewards are only effective in promoting creativity if employees value the rewards and have a strong belief in achieving creative goals (Malik et al., 2015), and this seems to correlate with the interview results. When it comes to motivation through rewards, several leaders have reported receiving innovation awards. This further confirms that team creativity is a tangible output, as perceived by most leaders.

However, it's important to note that the significance of these factors may vary based on the organization, industry, and team dynamics. Thus, team leaders must understand the unique characteristics and needs of their teams to implement these factors successfully. Different organizational cultures and reward systems may produce diverse outcomes.



There are certain dimensions and phenomena that are new and do not align with the existing literature as the following:

**Team leadership** (Frequency=51, N=22) is the second most highlighted dimension by team leaders. Leader effectiveness and Leadership Styles are the important subcategories. Although leader effectiveness was not highlighted among the top 30 factors in the literature, the interviews suggest that effective team leaders must provide clear vision and direction and create a safe environment for team members to express ideas. There were some leadership styles were included in the list, with Transformational leadership being one of them. This style is highly regarded by team leaders in the field, which emphasizes inspirational leadership. Moreover, Situational Leadership was the suggested leadership style by team leaders, with a total of five respondents indicating their preference for this approach. This style involves adapting to the situation, and anyone can become a leader based on the circumstances: *“Everyone is a leader, but a leader according to the situation,”* Ms. Noi. Additionally, a situation leader who relies on their expertise and experience should also possess the qualities of a transformational leader. This means they have the ability to inspire and motivate their team through methods such as inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration (Bass, 1985).

Interestingly, some leaders pointed out Thai culture, like *“Brothers and Sisters”* in their team. It can be inferred that the "Brothers and Sisters Culture" has fostered a sense of closeness among team members, allowing them to feel safe and trusting toward one another. This has led to an environment where individuals can freely express and share their ideas and opinions without fear of judgment (high level of trust and psychological safety within a team).

Many team leaders suggest for **team size** that smaller teams are better for collecting different perspectives and building strong relationships among team members. However, studies by Stewart (2006) and Hülsheger (2009) have shown that having a larger team can be beneficial when working on complex and uncertain tasks. It is important to find the right balance and avoid having a large team size that is unnecessary.

**Understanding constraints** (Frequency=14, N=5) was added to our knowledge as positively related to team creativity. It was proposed by 5 team leaders in the field. The idea put forth by researcher Rosso (2014) suggests that there are two types of constraints that impact team creativity - process constraints and product constraints. However, his study also revealed that the effects of these constraints on team creativity vary depending on the circumstances. In other words, process and product constraints have distinct impacts on team creativity. Research has shown that teams that face the right kinds of constraints in the right environments, and recognize the opportunities that constraints present, are more likely to benefit creatively from them. These challenges the commonly held assumption that constraints stifle creativity. It demonstrates that teams who are able to accept and embrace constraints can actually experience a sense of freedom within them. Our interview results further support this notion.

Three team leaders suggested that the **gatekeeper and timekeeper** (Frequency=4, N=3) can enhance their team creativity. Gatekeeper typically refers to an individual or a group of individuals who have the authority or responsibility to control and manage access to resources, opportunities, or decisions related to creative projects. The gatekeeper is a key decision-maker in determining which ideas and projects are approved, funded, and pursued. In line with the other literature, gatekeepers

can improve the capability of combining knowledge. This helps team members integrate knowledge held by specific team members (Zahra et al., 2020). These findings that gatekeepers enhance team creativity can be further explored.

In the literature, “**Task interdependence**” (Frequency=1, N=1) is considered one of the most important factors, but team leaders in the field often overlook its significance. Task interdependence can be a complicated concept, particularly when it includes various levels of interdependence (pooled, sequential, reciprocal) within a team (Thompson, 1967). There are several reasons why leaders may give low importance to task interdependence when it comes to team creativity. One reason could be that they may also believe that too much collaboration can lead to groupthink and stifle creativity. Additionally, leaders may not fully understand the benefits of task interdependence, such as the ability to share knowledge and perspectives, which can lead to more innovative and diverse ideas. Then, it is important for leaders to recognize the value of task interdependence in promoting team creativity and encouraging collaboration among team members.

Also, it has been observed that “**Working Spaces for Creative Experiments**” (Frequency=1, N=1) is not significantly enhancing team creativity. It was concerned that some leaders do not place high importance on providing working spaces for creative experiments in order to enhance team creativity. It is vital for teams to have access to these spaces in order to brainstorm and come up with innovative ideas. By overlooking this aspect, leaders may be hindering the potential growth and success of their teams. So, it is important for leaders to prioritize and invest in these types of working spaces to foster a culture of creativity and innovation within their organizations.

### 7.2.2.2 MEDIATORS (Positive/Enhance)

These findings are coherent with what has been published before, we add new study that confirms some previous observations of other researchers as the following:

**Motivation** (Frequency=55, N=22) is the top factor to be considered in enhancing team creativity. From the interview findings, this included money support and rewards, innovation awards, a challenge we had never done it before, KPI for creativity and innovation, and competitors. As mentioned earlier, the interviews revealed evidence of extrinsic motivation, in addition, the literature pointed out that “Intrinsic motivation” (Amabile, 1998) affects the choice to perform a particular task, the effort expended to achieve success on the task, and persistence at the task after achieving initial success (Cerasoli et al., 2014; Zhu, 2016). Therefore, intrinsic motivation has a positive correlation with all types of performance. For extrinsic motivation, the literature emphasized the competition that enhances creativity and collaboration as well as in the interview with Mr. Moshi, “*The competitors, I believe that competitors are also accelerating factors...*” It has been observed that competition can promote creativity and innovation.

There are certain dimensions and phenomena that are new and do not align with the existing literature as the following:

Team leaders have identified the **team creative process** (Frequency=113, N=28) as the most important Mediator category, which comprises subcategories such as the ideation phase, research, selection phase, follow-up feedback, and test. Without a creative process, the team will struggle. Most of the team leaders recalled Ideation meetings as their creative process. Interestingly, when team leaders refer to brainstorming, they are usually talking about an "Ideation meeting" rather than specifically using brainstorming techniques like divergent and convergent thinking. Moreover, most teams adopted a combined approach as they use all different processes to get the project done, such as Ideation meetings, Brainstorming, Design thinking, and so on.

The literature highlighted the importance of **psychological safety and trust** concepts as a top-list factor of team creativity. The interview results showed that leaders place top three importance on **psychological safety** (Frequency=31, N=17) but low importance on **trust** (Frequency=9, N=7). There are a number of reasons why leaders may not place a high priority on trust within their teams. One possible explanation is that they may view these factors as being less tangible or measurable than other business metrics, such as revenue or profit margins or KPI. Additionally, some leaders may believe that a focus on emotional well-being could be seen as "**soft**" or unnecessary in a competitive business environment. Thus, leaders who overlook these factors may be missing out on the benefits of a more cohesive and productive workforce.

Although most team leaders neglect "**Apply New Technology**" (N=3) and "**Coworker support**" (N=2), a supportive and collaborative work environment is crucial for fostering creativity. Coworker support involves encouraging idea sharing, providing constructive feedback, and creating a culture where individuals feel safe to express their ideas without fear of criticism. Neglecting coworker support can lead to a lack of psychological safety, inhibit creativity, and limit the diversity of ideas.

#### 7.2.2.3 TIME (Positive/Enhance)

There is an alignment of **time pressure** (Frequency=29, N=15) in both literature and in the field. Time pressure can have advantages like a clear timeframe and enough time for experiments, but it can also help to achieve specific results. As supported by the findings of Ohly and Fritz (2010) found that daily time pressure was positively related to daily creativity.

According to a study on **team longevity** in the field, teams that work together for a long time develop a higher level of trust. This was demonstrated by Jay "*For a long time, they will have more trust together...*" The members have to know each other before, and they have been working or experiencing or facing problems/tasks within their team together (Shin & Zhou, 2007)

#### 7.2.2.4 INPUTS (Negative/Hinder)

Chapter 5 shows the top negative/hindering factors that can be further explored. For instance, **poor leadership** (Frequency=28, N=10) is cited as the primary factor hindering team creativity. This implies that a leader has a critical role in fostering a creative team environment. There are many reasons why poor leadership can be a barrier to team creativity. For instance, a poor leader might not provide the necessary support, encouragement, and resources for team members to experiment and express new ideas. Poor leaders will not create an open and safe environment for team members. This can lead to a lack of communication and knowledge sharing within the team.

A team composed of individuals, **“Bad team composition”** (Frequency=21, N=11), such as a lack of specific knowledge and experience and forming a team not covered in the project, can lead to negative outcomes and reduce creativity. If a team member's skills and expertise do not align with the tasks and goals of the team, it can cause delays and inefficiencies. Additionally, a lack of diversity in terms of skills, perspectives, and experiences can hinder the team's ability to generate creative solutions to problems.

The field study also reveals **“Specific context constraints in Thailand”** (Frequency=14, N=5) as one factor that hinders team creativity. For example, Hierarchy culture in Thailand, organizational structures in Thailand can sometimes be hierarchical, which can impact the flow of ideas. Decision-making might be concentrated at the top, limiting the autonomy and creative input of team members. Also, Thai culture can sometimes be a limitation. Respect for elders, harmony, and avoiding confrontation can lead to discouraging an open expression of creative ideas and engaging in debates or discussions that could spark creative ideas and solutions.

There is a contradiction between the perceived idea of **team size** and what is supported by literature. According to team leaders, having a larger team can actually hinder creativity, which goes against previous studies by Stewart (2006) and Hülsheger (2009). These studies have shown that a larger team can be advantageous when tackling complex and uncertain projects.

#### 7.2.2.5 MEDIATORS (Negative/Hinder)

Although the literature lacks details on the negative factors that affect team creativity, a field study has revealed several such factors that require consideration. The most frequently cited factor among the interviewees was **the lack of a team creative process** (Frequency=27, N=12). This encompasses several issues, such as the absence of a research and review process, lack of engagement, inability to force creativity/ideas, and a gap between creativity and execution.

The **negative aspects of shared mental models**, such as unclear goals/direction or lack of alignment among team members, are not widely discussed in the literature. Zhao (2023) stressed the urgent need to study how inconsistent mental models among team members can affect team performance.

Through our research, we have found that **team learning can have negative consequences** such as not utilizing the pool of knowledge and resources within the firm, failure to learn from each other, and team members refusing to learn new things that require further exploration in the literature.

In the interviews, team leaders highlighted that **involving clients can have a negative impact** on team creativity if the clients lack a clear idea of what they want.

Moreover, it is crucial to realize that being **resistant to change and sticking to old methods** will not encourage creativity. **Personal issues or negative behavior can**



**increase team conflicts, and a lack of unity can lead to low cohesion.** At times, the team's primary goal is simply to complete the project and survive rather than achieving a common objective.

#### **7.2.2.6 TIME (Negative/Hinder)**

There is an alignment of **time pressure as a negative factor** in both literature and in the field. Time pressure can have disadvantages like limited timeframe and didn't have enough time for experiments.

**High longevity can have a negative outcome** by reducing creativity and productivity. Moreover, Katz (1982) found that "with increasing tenure or longevity, teams displayed lower levels of communication with experts outside their own project group or organization" (Katz, 1982; West & Anderson, 1996). This will lead to reduced creativity and productivity.

#### **7.2.2.7 Discussion of Quantitative Findings**

In order to triangulate the results, we also asked the team leaders to rate the eight dimensions (team composition, team structure/team leadership, organizational and environmental contexts, team creative process, team learning, team longevity, time pressure) based on their perception of team creativity. The dimensions were rated on a 7-point scale of "To what extent do you think that the following dimensions contributed to your team creativity?" and "To what extent do you think that the following dimensions contributed to your low team creativity?"

Figure 5.1 presents the mean scores of eight dimensions from highest to lowest for "To what extent do you think that the following dimensions contributed to your team creativity?" As observed, the quantitative findings are consistent with the

interview findings. Team leaders perceive team climate/cohesion, team composition, and team structure/team leadership as the most critical factors for successful team creativity. They tend to focus more on the Inputs dimension (in TCIM), which is consistent with the existing literature. This dimension involves people aspects such as diversity, individual creativity, personality, and leadership. The second most crucial dimension is Mediators, which focuses on team climate, team learning, and team creative processes. However, there is less consideration given to the Time dimension, which includes factors such as time pressure and team longevity.

Figure 5.2 presents the mean scores of eight dimensions from highest to lowest for "To what extent do you think that the following dimensions contributed to your low team creativity?" Team leaders perceive team climate/cohesion, time pressure, and organizational/contextual factors as the most critical factors for not successful in their team creativity (or hindering it). This means team climate and organizational/contextual factors that surrounding teams can affect on team creativity. The less mean scores such as team learning, team composition and team longevity may not consider as significant factors for contributing to low team creativity.

After conducting an Independent Samples T-Test 1, 2, it was revealed the significant differences exist between the Creative industry (N=16) and other industries (N=17).

Firstly, the Independent Samples T-Test 1 (Table 5.63) demonstrated a significant difference in the team learning dimension that affects team creativity between the creative industry and others. When it comes to team learning and

knowledge sharing, there are notable distinctions between the creative industry and other industries. This is due to the fact that the creative industry prioritizes tasks that heavily rely on creativity, innovation, and thinking outside of the box. Unlike other industries, which may have more structured processes and work environments. Creative work in industries like design, advertising, or entertainment requires teamwork and knowledge sharing in order to generate novel ideas.

Creative industries often rely on collaborative teamwork, where individuals from diverse backgrounds come together to create innovative solutions. This interdisciplinary approach fosters a culture of knowledge sharing as team members draw upon their varied expertise, perspectives, and experiences to generate new ideas. Collaboration and interdisciplinary work may not be as common in some industries, which can impact the importance placed on sharing knowledge.

It is important to note that there are differences in the emphasis on team learning and knowledge sharing between the creative industry and other industries, there can still be differences within and across industries. Contextual factors, organizational culture, and individual preferences also play a role in shaping the practices and norms related to knowledge sharing in teams.

Thus, there is limited research that specifically examines the differences in team learning such as knowledge sharing between the creative industry and other industries. However, examining these factors in the context of the creative industry and comparing them with other industries can provide valuable insights into the unique dynamics of knowledge sharing in creative teams.

Secondly, the Independent Samples T-Test 2 (Table 5.65) demonstrated a significant difference in the Team creative process and Team learning dimensions that

contributed to low team creativity between the creative industry and other industries. While team learning and the creative process can contribute to team creativity in both the creative industry and other industries, there can be significant differences in how they operate and their impact on team creativity.

The work environment and organizational culture in the creative industry tend to prioritize and foster creativity. Creative industries often embrace risk-taking, experimentation, and outside-the-box thinking. In contrast, other industries may have more structured and hierarchical work environments that prioritize efficiency and productivity over creativity. The differences in work environment and culture can influence the team learning processes and creative approaches adopted, potentially impacting team creativity.

Creative industries often provide teams with a higher degree of autonomy and independence to explore ideas and take ownership of the creative process. This autonomy allows team members to experiment, take risks, and think creatively. In other industries, teams may have more constrained roles and limited decision-making authority, which can inhibit the creative process and limit opportunities for team learning.

Collaboration and interdisciplinary dynamics are often more prevalent in the creative industry. Creative teams in areas such as design, advertising, or entertainment frequently bring together individuals from diverse backgrounds and skill sets to generate innovative ideas. The interactions and knowledge exchange that occur within interdisciplinary teams can facilitate team learning and enhance the creative process. In contrast, other industries may have less emphasis on collaboration or fewer

opportunities for cross-functional teamwork, which can limit team learning and the exploration of diverse perspectives.

While these factors suggest potential differences in the impact of team learning and the creative process on team creativity between the creative industry and other industries, it is important to note that the difference exists within and across industries.

Therefore, it is worth mentioning that research specifically comparing team learning and the creative process between the creative industry and other industries is limited. Conducting further studies with a larger sample that explore these differences can contribute to a deeper understanding of the unique dynamics that impact team creativity in different industries.

### 7.3 Answer to Research Question 2

**Research Question 2**, “How is team creativity process affected by critical incidents?” This part of the research was qualitative in nature and involved thematic analysis of the interview responses collected from team leaders. This research explores the team creativity process using the Critical Incident Technique (CIT). We analyzed the contextual-based stories and categorized them into positive, negative, and sequences of critical incidents. The findings revealed a new perspective that had not been previously highlighted in the literature.

Through this research, we identified 17 types of critical incidents as the following (See also Table 6.1, 6.2, 6.3),

#### **For positive critical incidents:**

1. Unexpected constraints lead to positive consequences
2. Collaboration with external teams/partners
3. When creative process blocks, take a break and step away from work
4. Tension and conflict
5. Financial Constraints and Unexpected Constraints lead to Positive consequences
6. New technology use constraints lead to Positive consequences
7. When faced with disruption, the ability to adapt becomes crucial
8. A new discovery led to networking collaboration

#### **For negative critical incidents:**

1. Unexpected constraints lead to negative consequences
2. One person destroys the dynamic of a team
3. Not having right people in team composition

4. Resistance to change
5. Hierarchy culture

### **For critical incidents as a sequence**

Initial failure might lead to more creativity:

1. People misunderstood in team creative process (Negative incident)
2. The Capability of leader to be flexible (Positive incident)

Initial failure might lead to more creativity:

3. People resisted to do the creative process, DT (Negative incident)
4. The Capability of leader to be flexible (Positive incident)

### **7.3.1 Unexpected constraints can lead to positive or negative consequences**

Surprisingly, unexpected constraints can sometimes result in positive outcomes. These unexpected constraints include tough and big projects, COVID-19, etc. It is important to note that unexpected constraints predictably lead to negative consequences. Therefore, our research supports the idea that unexpected constraints can enabler or hinder team creativity.

For enablers team creativity, Mr. Hadrien provided an incident where his team was given a frame with constraints that led to their successful project as

*“...We actually became creative because suddenly, we were given a frame that was way more than we're more constraints. Right. And I think this is where brilliant, creative people suddenly arise... Of course, we had prior. But when this publisher said it has to be released on this date, it has to cater to this kind of audience. We don't want this. We don't want that because we don't sell this kind of game. And everything, for example, Ultraviolence and Gore, was out of*

*the question for them. And so, we had to reimagine how we create fear and how we create tension without the player being afraid of having the character dying. And that was really interesting.*

*And so what really worked with it, again, the same stuff is curiosity is going outside of our comfort zone, starting to look at other games or other books, movies that we would and especially the one we didn't like. **And they were a huge success.***”

Moreover, Mr. Moshi also pointed out that financial constraints and unexpected constraints that lead to positive outcomes:

*“I must emphasize first that we need to maintain a high level of creativity at all times. **In the past, we faced the challenge of having a limited budget, and our promotional efforts were hindered by transportation restrictions.** How can we generate more recognition and awareness for ourselves? Allow me to illustrate with the example of our franchise—a truly innovative product. In fact, I would like to share the story of how its creative concept emerged despite **our financial constraints.***

*We managed to allocate 3 million baht for a billboard. Unfortunately, this investment alone did not generate sufficient awareness. Therefore, we decided to reevaluate and explore other options. Our solution was to transform billboards into posters. We chose to utilize posters exclusively, which proved to be a cost-effective alternative. By doing so, we significantly reduced our daily expenses. How did we achieve this? We devised a bundled package that encouraged people to display our posters. This approach not only proved to be economical but also maximized visibility. Digging deeper, we continuously*



*asked ourselves 'why?' and applied design thinking principles. This led us to embark on a pilot phase, followed by user testing. Once the testing phase was successfully completed, we emerged with our first franchise branch, achieved with a 3,000 baht investment. Presently, we have expanded to 1,000 branches, investing a total of 3 million baht.*

***Remarkably, this approach has garnered greater awareness compared to a billboard, underscoring the significance of stimulating creativity. I firmly believe that success lies not in the amount of money invested but in our ability to adapt and innovate. As we face the constraints of limited funds, we cannot afford extravagant marketing campaigns that require millions of baht. Therefore, we must explore alternative strategies to achieve similar results without burdening our financial resources.”***

Other constraints such as New technology use constraints also lead to Positive consequences as demonstrated by Mr. Pawel as the following:

***“...So, this was using quite simple technology. We used Unreal Engine and a headset, VR headset. And what it allowed us to do was to show the client exactly what the room would look like...***

***And so, as a result of that, we have a new service that offers to our clients, which is a virtual reality mock-up service.***

***So, I mean, virtual reality headsets have been around for a while and it's always been mostly used for gaming. Yes, there are some business applications for it, but trying to understand how to link the virtual reality headset that we know from gaming with a business need filling that gap that that was the challenge and that was the ability to. To be the ones to define how we close that gap is***

*something that really became a big impetus for getting that solution together.”*

However, Liam highlighted the way of unexpected constraints that can hinder his team's creativity as:

*“This was a big, big project. You know, lots and lots of sales, but the extremely demanding client and very extremely demanding. I mean, not just in the amount of work that was being requested...*

*And the other factor is the sheer volume of work that was required and in the extremely short. This was a really high tide pressure and high output requirements, which in some ways can stimulate creativity. **But in other ways, combined with the aggressive attitude of the client, it really reduced creativity.**”*

These critical incidents are consistent with the literature from Rosso's (2014), who defines constraints as “a state of being limited, confined or restricted within prescribed boundaries.” This definition acknowledges the possibility that constraints may arise both internally and externally. These constraints may have positive or negative consequences for R&D teams. Rosso (2014) also identified constraints into 2 categories: process constraints (i.e., constraints of time, equipment, human resources, and money) and product constraints (i.e., constraints from product requirements, customer and market needs, business needs, and intellectual property). His research suggested that constraints on the process were more likely to inhibit team creativity, while constraints on the product were more likely to enhance it.

In our cases of critical incidents, we found out that process constraints, such as financial constraints and new technology use constraints, can sometimes lead to positive outcomes that enhance team creativity (Moshi and Pawel illustrate this phenomenon). Product constraints, such as very high demanding clients, can sometimes lead to negative outcomes that inhibit team creativity (Liam illustrates this phenomenon). Additionally, the mixing of process and product constraints as demonstrated by Hadrien can lead to positive consequences.

The statements highlight how the impact of limitations on team creativity can vary based on the type of constraints imposed and the triggers surrounding the teams. These triggers could be factors such as the level of collaboration, frequency of communication, task structure, leadership, and team climate, which can influence how teams interpret the constraints they are facing, for example:

- **High levels of collaboration** can lead to a pool of diverse ideas and expertise, helping the team find creative solutions to overcome limitations.
- **Frequent and open communication** is important for addressing constraints. Effective communication allows team members to share their perspectives, identify problems, and collectively explore potential solutions to overcome limitations.
- **The structure of tasks** can either facilitate or hinder team creativity. Some constraints may require a more structured approach, while others may benefit from a more flexible and adaptive task structure that encourages creative problem-solving.
- **Effective leadership** is essential in guiding teams through constraints and inspiring and motivating team members.

- **Team climate and culture** can influence how constraints are perceived. A supportive and innovative team culture can inspire members to see constraints as opportunities for growth and creativity.

In sum, these observations are consistent with real-life scenarios and research findings in the field of creativity and innovation, emphasizing the importance of understanding how constraints can either inhibit or enhance team creativity.

### 7.3.2 Collaboration with external teams/partners leads to positive consequences

Collaboration with external teams or partners can indeed lead to positive consequences, and these positive outcomes can be considered critical incidents in a positive sense, as collaborating with external teams or partners often brings new perspectives and ideas to the table. This can lead to the development of innovative products, services, or solutions that can significantly benefit an organization. Moreover, it can facilitate the transfer of knowledge and expertise. This can enhance the skillsets of the team members and improve overall organizational capabilities.

As described by Mr. Hadrien, his team realized that this project was really too big. So, they started to contact their partners to help them that lead to the development of their game:

*“One of the main projects that we worked on that was never released is called XXX. And it was a whole world with like a super complex lore. And as we progressed further, **we realized it was really too big for us to take on. And this is when we started to contact the bigger studio to help us.** What I like is that at some point, we really worked on it for six months as a team. We agree on everything. We had this vision. We were like really enjoying it, building a lot of*

*stuff. And when we started working with two other studios, one publisher and one studio, they started to say, Well, yeah, but could you do this? Could you do that instead? And we couldn't say no, right? Because they were bringing a lot of crash. And what I liked is that instead of just rejecting everything or just being depressed because they're like, Oh no, **it completely changes to the scope of the game, the vibe of the game, the flow of the game.**"*

According to the literature, high levels of collaboration among interdisciplinary teams, where their work towards common goals, shared knowledge resources, and shared language (or on the same page) are important for effective collaboration with partnerships.

However, Mamykina and colleagues (2002) have pointed out that although interdisciplinary collaboration is beneficial, it is a complex process that requires further research in areas such as organizational behavior, leadership and management, social sciences, architecture, and space design. It is crucial to understand that creating an environment that fosters creativity involves both physical and emotional aspects. Providing an atmosphere of trust, encouragement, and risk-free exploration, as well as offering incentives for creative inquiry, is most important for the development of any creative culture.

### **7.3.3 When creative process blocks, take a break and step away from work, can lead to positive outcomes**

For this critical incident, Mr. Hadrien mentioned that when their creative processes are blocked, they take a break and step away from their work and as a result, new creative ideas emerge:

*“But eventually, it was really going. Yeah. It's 8 p.m. Everyone is tired. Your eyes are burning, and you have two options. Either you say, I don't care. We all work until midnight until we find an idea. Or you manage to convince them to go like all, Let's go grab a beer. Let's just go. Let's just go out. And actually, while we're having a beer and renting and go, yeah. One hour later, we'd be like, Oh, but you know what, actually? And then literally you bring some papers, you start doing stuff because you widen you reduce the stress. As you probably know, you know, high levels of prolactin or cortisol tend to fog your capacity to think, right? So when you start to get a little bit not drunk, but just you get a little bit of alcohol, you're relaxing with your friends. You see other friends; you stop thinking about work. You actually start cursing and be like, Oh, no, no, no. It actually releases a lot of stress. And you can not always, but sometimes you kind of like switch gears, and we would, yeah, just relax a bit, and some ideas would emerge from this, but that worked for all the projects.”*

Research on creative process blocks in teams is limited. Stress and anxiety have been shown to hinder problem-solving and creativity (Beilock & Carr, 2005; Nazarian et al., 2010). However, literature (e.g., Kaufman & Kaufman, 2009; Lubart, 2009) has highlighted the creative process blocks of individuals (writers). It was found that such blocks are more likely to occur during the stages of the writing process that involve decision-making, rather than during the process of generating new ideas and making associations (Kaufman & Kaufman, 2009; Lubart, 2009)

Many writers face creative blocks while writing. To overcome these blocks, they often take breaks, push themselves to keep writing, switch to a different writing

project, or engage in physical activities like taking a walk or exercising. Here, we will not delve into the details of writers' creative process blocks and solutions. In addition to our research, future researchers can study further to understand what blocks the team's creative process and how to overcome those blocks.

#### **7.3.4 Tension and conflict sometimes can lead to positive outcomes in certain situations**

Moreover, Mr. Hadrien suggested that tension and conflict may lead to positive outcomes which are rarely seen in the literature:

*“Okay. One thing maybe I should say is that through the fights within some of the guys within the team, some really great ideas came up and this one is this one could be a whole book just on itself, is how when we're facing adversity, when we're facing a dangerous solution, our brains are starting to use more of the reptilian part of the war, like the instinct and the survival part of it. And because these guys were really like yelling at each other, and I was like, Come on, what are you going to do? Are you going to punch each other? And it was like making jokes about this. And one of the guys was like, I'm not going to punch him. I'm going to use it. And he went into a long rambling about like, I'm going to use this. And I was like. That's actually good. You know, and it came from this because you unlock your brain again to do. **I don't care anymore. And then I don't care anymore attitude is also somehow where you become more creative.** But don't quote me too much on this because I don't want to people believe that, oh, yeah, you should fight with each other, and then*

*you're going to have better ideas. **But it's just to say that some stuff sometimes happened from this tension.***” By Mr. Hadrien

This statement implies that “Tension” and “Conflict” in specific situations/incidents can sometimes lead to positive results. Future researchers can study further the positive impact of tension and conflict on team creativity. Addition to our study, identifying type of tensions and conflicts that lead to creativity of teams will be beneficial.

### **7.3.5 Other critical incidents that lead to positive consequences**

There are other critical incidents suggested by team leaders in the field.

These critical incidents are

#### **7.3.5.1 When faced with disruption, the ability to adapt becomes crucial**

This critical incident highlights the importance of adaptability when disruptions occur. It aligns with what was previously discussed. When teams are faced with unexpected and significant disruptions, they need to be able to adapt quickly to minimize the negative impact and find ways to continue functioning effectively. As suggested by Ms. Pawinee

***“But when this trend comes (Energy disruption), it makes us have to adapt to prepare... I really feel the potential of people who can adjust anything at any time, it's quite obvious that this one, having creativity and team involvement allows us to reach our goals. Let's succeed together.”***

It highlights the significance of preparation, and team resilience in the face of various disruptive events. Future research could explore how teams navigate disruptions and correlate adaptability with other factors.



### **7.3.5.2 A new discovery led to networking collaboration, which led to positive outcomes**

As suggested by Ms. Vivan:

*“Give an example of an innovation that has come out concretely. That is, we have developed a bandage made from bio-cellulose. We sell to hospitals. This is also one of the products that researchers have developed until they can be commercialized. And most importantly, the products we make must be new, not copying anyone who is in our company ...so it must have at least an IP to confirm that it is a product that is new on a global scale. No one had ever done it before. To achieve success, we created a synergy that allows for commercialization of the destination group. Networking collaboration with partners such as hospitals, research institutions, and our existing partners is crucial for driving innovation and making our ideas a success.”*

This critical incident involves a different scenario. It emphasizes the positive potential of collaboration and adaptability in response to new discoveries. When teams come across new information or opportunities, the ability to adapt and engage in networking and collaboration can lead to positive outcomes. This incident highlights the importance of creativity, and collaboration in turning unexpected discoveries into beneficial results.

Both critical incidents stress the need for adaptability in different contexts. The first one focuses on adaptability during disruptions, while the second one highlights adaptability in seizing opportunities and achieving positive outcomes. In practice, these incidents can serve as a starting point for researchers to explore further the case studies

to prepare their teams for various situations and encourage them to develop the skills and mindset necessary for successful adaptation and collaboration.

### **7.3.6 One person destroys the dynamic of an entire team**

Our negative critical incident on one person can destroy the dynamic of team, confirms the literature from Felps and Colleges (2006) that examines “how, when and why the behaviors of one negative member can have powerful and often detrimental influence on teams and groups.” They called this negative or toxic member as “Bad apple.” Felps defines negative people as “those who don't do their fair share of the work, who are chronically unhappy and emotionally unstable, or who bully or attack others.” They found that a single "toxic" or negative team member can be the catalyst for destroying team dynamics. And these can be demonstrated by Mr. Hadrien:

*“Yeah. So it was a bad project. And the number one reason I can tell you is ego and pride. And. Me, me, me, me, me. It's my IDEA, it's my game. It's my. Or I don't like this. I don't want to do it. ...But within the team there was a big problem with. The guys keep changing every two weeks, even though we're telling them, please focus on this. And after two weeks, they were like, Yeah, but I don't like it. And I was like, It's okay. It's just a little part of the bigger picture... Every time we come up with something creative, it would immediately his energy would pull everyone down... But this guy was just breaking the kind of the, the dynamic between the people to the point that, yeah, people then said, I don't want to work with him. So. It pulled the whole team down until the two of them exploded. And then it brought the morale super low. And so we took the decision to kill the project.”*

In addition, the literature suggested future researchers use qualitative techniques to investigate teams struggling with a bad apple. The various cognitive factors such as inequity, negative mood, and distrust, along with group-level constructs such as lower mood, potency, safety, and group-based trust, can hinder the key processes that make groups effective, including motivation, creativity, learning, cooperation, and task conflict (Felps et al., 2006).

### 7.3.7 Not having right people in team composition lead to negative consequences

Much research on team composition has focused on the effective composition of teams that can contribute to team creativity (e.g., Hulsheger, Anderson, & Saldago, 2009; Reiter-Palmon et al., 2012; Taggar, 2002; Van Knippenberg et al., 2016). In contrast, bad team composition can lead to negative results, as demonstrated by Mr. Scott:

*“Okay. Yeah. The next one is a project, a boutique hotel which is quite recent. We didn't form a strong team before we went to see the client and we sent someone who. Was not straight out of school, but not that experienced, but very keen. And they went and got the brief from the client and thought they understood what the client wanted. We didn't have enough senior people on the project, but the designer was very keen, very enthusiastic, quite creative, and had a support team but didn't follow our process. So, we didn't have a proper design review. They didn't have they didn't use the resources of the firm and the knowledge that we had in the firm they thought they were smart and could do it by themselves. Then they went and presented to the client this hotel and that, very proud of it. And we had never reviewed it internally. So, it*

*missed out on this designer process, and it was horrible and we had to. Then go to the client and say, I think we can do a nicer design, we need another month and we're going to put more people on to the project. And we had to redo the project. The client didn't really complain, but we knew that it wasn't very good. So, I guess. It was not having the balance on the table. Not following process. They worked alone. They didn't use the knowledge bank that's within the company. They didn't have the experience or knowledge of that kind of project. So, they didn't use the expertise that we have and they didn't follow our process. They didn't have the review before and they didn't work as a team.”*

This critical incident can be implied that bad team composition or not having right people in the team, in terms of competencies (KSAs), and not have enough experience or knowledge in this type of project can lead to negative outcomes.

### **7.3.8 The people resistance to change resulted in negative consequences**

Mr. Pawel emphasized how his team resisted the use of new software for drawing. With BIM software, they can save lots of time and money and avoid mistakes. As a result of not using it, the project was not successful:

*“Yeah. Drafting software. In the last ten years, there's been a drive to move to something that's called Bim Bim. And that stands for building information modeling. And the big difference between AutoCAD and BIM software is that in AutoCAD,... Anyway, that's detail about BIM. The point is, most interior designers don't think in terms of BIM. They don't think in terms of databases. They think in terms of creativity. What should space look like? How can I*

*communicate what I want that space to look like so that it can be built? The on the other hand, those people that are pushing for bim, because it can save an incredible amount of time for interior designers because it's parametric. ...We had a few projects that we did, but the reason it failed is that most designers don't want to. They all want to do their own drawings, even if it means they're going to spend. Lots and lots of time doing it and making lots of mistakes. They would rather do it themselves than to have someone else to do it even if it saves the money. And this is something that we didn't expect. So that was a project that wasn't successful and not successful because I guess we didn't expect that result.”*

In the literature, Hon and colleagues (2014) examine the individuals' resistance to change, which is negatively related to their creative performance. In order to overcome this resistance, the three social-contextual factors including:

- Farh, Earley, and Lin (1997) suggest that a **team climate emphasizing modernity** should prioritize equality, flexibility, openness, and progression beyond the status quo.
- **Empowering leaders** involves team managers sharing power to enhance employee motivation and investment in their work (Zhang & Bartol, 2010).
- **Supportive coworkers** are key to positive social relationships and creativity through providing help and support (Zhou & George, 2001).

These three social-contextual factors might help to overcome the effects of resistance to change (Hon et al., 2014). Future research could explore more on these three social-contextual factors and the resistance of change on team phenomenon.

### 7.3.9 Hierarchy culture led to negative consequences

As Ms. Noi suggested that hierarchy culture in her company can lead to negative consequences:

*“If the senior person comes up, he will sit at the head of the table. Immediately, in the function of people who run km, sometimes we are difficult, because sometimes he is more senior than us, once again who used to have a high level, he is a senior VP, coming in a position much higher than the younger people. Really, we are unable to do anything, he has a duty to cut 1 2 3 4...”*

Walter (2012) study about work environment factors of IT company based in Thailand that can lower creative output. His results showed that culture was the main barrier, including cultural norms about seniority in Thailand. His research has been limited since only one company was examined and cannot be generalized. Our study can add the confirmations to Walter’s (2012) study.

### 7.3.10 Sequence of critical incidents

The sequence of critical incidents described by team leaders including:

#### 7.3.10.1 Initial failure might lead to more creativity

In the example 1, the sequence of critical incidents described by Mr. Gordon, there is a specific incident related to the initial failure within a team creative process that can lead to increased creativity. The incident is as follows:

**Negative critical incident (Initial Failure):**

*“People misunderstood in team creative process. But what happened was they misunderstood. And so, what they did was they created a competition to create*

*a name for the brand, not ideas for the brand. And the thing is, you know, creativity is great, but it doesn't mean great execution." By Mr. Gordon*

In this negative critical incident, people initially misunderstood the creative process, leading to focus on naming the brand rather than generating ideas for the brand. This misunderstanding could be seen as an initial failure because it distracted the team's efforts away from the intended creative process. However, it is important to note that this initial failure and misunderstanding can potentially lead to increased creativity under the right circumstances. Mr. Gordon goes on to describe a positive incident where he, as the leader, demonstrated flexibility and adaptability in response to this initial failure.

**Positive critical incident (Leader's Flexibility):**

*"So, I had a challenge. How do I get what I need, which is what is the meaning of the brand to this group of people? But how do I also keep them excited about their contribution without having to choose one of their names? Because the names weren't very good. So, what I did was I did a workshop, kind of a very basic design thinking workshop... So, at the end of about an hour, we had about ten different themes where we had grouped all of these 150 names. And then from these themes, we actually had a series of attributes related to each theme. And those attributes we could then take and give to the branding agency... but the creativity was in how do we get this group of people to go deeper? Right. So how do we get them to kind of consolidate? And then go deep. And it's in going deeper into the themes, for example, that's where we could really start to understand the key meaning of what this brand was*

*supposed to be for them. So they had a really good time. So they, and that's always important for creativity, is that people feel excited, they feel like they can contribute. So they have to feel safe that it's okay for them to have ideas. And yeah, that's a recent example I can share.” By Mr. Gordon*

In this positive critical incident, Mr. Gordon took the initial misunderstanding and turned it into an opportunity for increased creativity. He organized a design thinking workshop and encouraged the team to go deeper into the themes related to the brand names. By doing so, the team not only generated ideas but also gained a better understanding of the key meaning of the brand. Mr. Gordon's flexibility and adaptability as a leader in response to the initial failure contributed to a more creative and productive outcomes.

This sequence of critical incidents highlights that initial failures can be a catalyst for creative problem-solving when leaders are able to adapt and guide their teams toward a more productive direction.

Similar to the example 2, Mr. Gordon's also discusses how an initial failure in a creative process led to a more creative outcome. This can be broken down into a negative incident and a positive incident, highlighting the potential for increased creativity through adaptability and a deeper understanding of the problem:

#### **Negative critical incident (Initial Failure)**

*“I was actually doing a workshop online for a client. Yeah. And it was a design thinking workshop and so had all of the structure and the exercises set up. I think it was one hour, an hour and a half long, and I was describing what we were about to do. And so we're going to ideate on some problem statements*



*and. The one of the more outspoken people in the team. So, Mr. G. Really sorry, but we've already done this type of exercise and it wasn't helpful, it wasn't useful, we didn't get any good results. And I was thinking, Oh, of course, because I didn't I didn't do it with them. So of course it wasn't very good. But they said, no, no, no, we don't want to do that. We don't want to do that. And then he started to explain. Why we couldn't do that and why it didn't work and why it was so challenging..." By Mr. Gordon*

People resisted the creative process, specifically design thinking (DT), and expressed their disbelief about its effectiveness. They had previously attempted a similar exercise and found it unhelpful and unproductive. One of the participants was vocal about their doubts and explained why they believed the creative process wouldn't work for them.

**Positive Incident (Leader's Flexibility and Problem identification and construction):**

*"...So then we actually spent the whole session just **defining problem statements like what is the actual problem we're trying to solve...***

*So for me, again, that's a very defining a problem. It's also a creative process. It's not what people think of as the traditional creative process, which is like come up with lots of ideas, etc.. But so I guess I'm using this as an example because. **On the one hand, what we had set out to do didn't work. We couldn't. We couldn't do what we wanted. But at the end of the day, I think we had a better result because we actually. Started to look where the actual problem was which was in defining the problem itself before we even started a solution.***

*...But I wouldn't necessarily blame that on a low level of creativity or novel ideas. I think it's there's usually deeper issues, right? Like maybe you don't know enough about the market or maybe you didn't. Yeah. The end user. Right. So it's all about setting the right conditions up front. So I would say if you don't have novel ideas of solutions, then you may not know enough about the problem in the first place. So maybe the problem you're trying to solve isn't the right problem. It's not giving you enough information about what it is you're trying to solve. So for me, creativity. Again, it goes back to. **Do we really understand the constraints? Do we really know what we've got to work with in terms of people, environment, context, competitors? So. Yeah.**" By Mr. Gordon*

Despite the initial resistance and disbelief, Mr. Gordon, as the leader, decided to adapt and change the approach. He shifted the focus from the traditional design thinking process to problem definition. Then, the group spent the session defining problem statements and gaining a deeper understanding of the actual problem they were trying to solve.

Mr. Gordon viewed problem identification as a creative process in itself, emphasizing the importance of understanding constraints, user needs, and the context. He suggested that a lack of novel ideas or solutions might be linked to insufficient knowledge about the problem they were addressing, rather than a lack of creativity.

This sequence of critical incidents illustrates how an initial resistance to a particular creative process can lead to a more creative and effective solution when the leader is flexible and open to redefining the approach. In this case, the shift from

ideation to problem identification provided a better understanding of the challenge, leading to more informed and potentially more creative solutions. Mr. Gordon's perspective emphasizes the importance of understanding the problem deeply and setting the right conditions for creativity to flourish.

In conclusion, these critical incidents have provided evidence to support the assumption that team creativity is influenced by the context and specific situations in which teams operate.

In other words, the incidents we observed or studied have highlighted that creative outcomes within a team are not solely dependent on the inherent creativity of team members but are also influenced by the environment, circumstances, and the unique dynamics of each situation. This understanding underscores the importance of considering the context and tailoring creative approaches to specific scenarios in order to foster and enhance team creativity.

In this research, we identified both Team Creativity IMOT factors and Critical Incidents. Some of the factors, such as team composition, team leadership, and team culture, are Team Creativity IMOT factors. These are elements that can be planned, designed, and consciously managed to influence team creativity over the long term.

On the other hand, the Critical Incidents which are identified, such as "Unexpected constraints lead to positive consequences or negative consequences" or "One person destroys the dynamic of a team," are specific events that occurred within the team creative process. These incidents are unplanned and had a short-term impact on the team creativity. Critical incidents are often unexpected events that occurs within team creative process so they cannot be designed or planned. For instance, the impact of unexpected constraints can lead to creative problem-solving. When a team faces constraints or challenges, it may be forced to think creatively to overcome them, leading to the generation of creative ideas and solutions. Moreover, collaboration with external teams or partners as a critical incident has positively impacts team creativity by introducing fresh perspectives, ideas, and expertise. It is important to note that the short-term impact of critical incidents on team creativity is often context dependent.

Therefore, we have identified that Team Creativity IMOT factors are primarily influential in the innovation process when they are intentionally planned and designed. These factors, when incorporated into the team's creative processes, contribute to the expected outcomes. However, we also recognize that critical incidents, which are often unplanned or unexpected, can introduce unique influences on creativity and innovation. Moreover, our findings indicate that certain factors can straddle both categories, manifesting as critical incidents while also appearing in planned Team Creativity IMOT factors, highlighting the need for teams to adapt to both anticipated and unforeseen influences to foster creativity and innovation effectively.

Among the critical incidents we have identified, several can also be considered as factors that influence team creativity both as Team Creativity IMOT factors and as Critical Incidents, depending on their context and management. For example:

**Unexpected Constraints:**

- Team creativity IMOT Factor: deliberately introducing constraints in certain situations can be a planned IMOT factor. Controlled constraints can stimulate creative thinking by forcing teams to find creative solutions within limitations.

- Critical Incident: unexpected constraints can also be critical incidents when unforeseen limitations arise. These unplanned constraints may lead to creative problem-solving, but their sudden appearance can disrupt the team's workflow.

**Collaboration with External Teams/Partners:**

- Team creativity IMOT Factor: establishing partnerships and collaborations with external teams or partners can be a planned IMOT factor to bring in new perspectives, ideas, expertise, and resources to enhance team creativity.

- Critical Incident: while collaboration with external teams/partners is often a planned strategy, it can also become a Critical Incident when such collaborations occur unexpectedly due to unforeseen circumstances, such as a sudden need for external support.

**Resistance to Change:**

- Team creativity IMOT Factor: addressing and managing resistance to change within a team can be a deliberate IMOT factor to encourage team members to embrace new ideas and processes, thus fostering creativity.

- Critical Incident: resistance to change can also be a critical incident when unexpected and unmanaged resistance arises in response to changes within the team. This unplanned resistance can hinder creative processes.

**Hierarchy Culture:**

- Team creativity IMOT Factor: establishing a flatter and less hierarchical team culture can be a planned IMOT factor that encourages open communication and idea-sharing, creating a more creative environment.

- Critical Incident: a hierarchical culture can be a critical incident when a team suddenly experiences a shift toward a more top-down approach, disrupting its typical culture and possibly stifling creativity.

The following table illustrates whether factors have a different influence on the innovation process when it occurs as a critical incident compared to when it is planned/designed depends on the specific circumstances.

**Table 7.1**

*How the factors listed can have different influences on the innovation process depending on whether they occur as critical incidents or are planned/designed.*

	<b>Influences in Critical Incidents</b>	<b>Influences When Planned/Designed</b>
<b>Positive critical incidents</b>		
1. Unexpected Constraints	Can lead to creative problem-solving and innovation when they force teams to find solutions within limitations.	Can stimulate creative thinking when deliberately introduced in certain situations.
2. Collaboration with External Teams/Partners	Can bring new perspectives, ideas, and expertise to the team, fostering innovation.	Planned collaboration to enhance creativity by introducing external perspectives and resources.
3. When creative process blocks, take a break and step away from work	Can provide a refreshed perspective and overcome creative blocks.	Can be a planned strategy to encourage breaks and enhance creativity.
4. Tension and Conflict	May initially disrupt creative processes but can lead to innovative solutions if effectively managed.	Planned strategies for conflict resolution can promote a positive team culture.
5. Financial Constraints and Unexpected Constraints	Can stimulate innovative solutions when teams are constrained by limited resources.	Planned resource constraints can encourage creative problem-solving.
6. New Technology Use Constraints	May lead to creative adaptations and innovations when teams work within technological limitations.	Deliberate constraints can encourage creative use of technology.
7. Adaptation to Disruption	Can enhance creative problem-solving when teams adapt to unexpected changes.	A planned adaptive culture can encourage innovation during disruptions.
8. New Discovery Leading to Networking Collaboration	Can result in networking and collaborative opportunities that foster innovation.	Planned strategies for discovering and leveraging new opportunities for collaboration.
<b>Negative Critical Incidents</b>		
1. Unexpected Constraints	May disrupt the team's workflow and hinder creativity, especially if unmanaged.	Deliberate constraints can stimulate creative thinking if well-controlled.
2. One Person Destroys Team Dynamics	Can hinder team cohesion and creativity, particularly if not addressed.	Planned strategies to ensure positive team dynamics and collaboration.
3. Not have a right Team Composition	Can limit creativity if the right skills and expertise are lacking	Planned team composition that fosters diversity and creativity.
4. Resistance to Change	Can hinder creative processes when team members resist new ideas or approaches.	Planned strategies for managing and addressing resistance to change.
5. Hierarchy Culture	Can stifle creativity when a top-down approach limits idea sharing.	Planned strategies to foster a flatter, more creative team culture.
<b>Critical Incidents as a Sequence</b>		
1. Initial Failure and Leader Flexibility (Negative and Positive Incident)	Leader's flexibility can mitigate the negative impact of initial failure and lead to more creativity.	Planned leadership flexibility can encourage creative problem-solving during challenges.
2. Initial Failure and Leader Adaptability (Negative and Positive Incident)	Leader's adaptability can enhance team creativity after resistance to the creative process.	Planned leadership adaptability can encourage creativity in the face of resistance.

It is important to recognize that factors can transition between being part of a planned/designed of team creativity IMOT strategy and becoming Critical Incidents based on the specific situation and management. This dual role underscores the dynamic nature of team creativity and the need for flexibility and adaptability in managing and promoting creativity within teams and organizations.

#### 7.4 Chapter Summary

Table 7.2 provides the summary of the major findings of this research.

**Table 7.2**

*Summary table of the major findings*

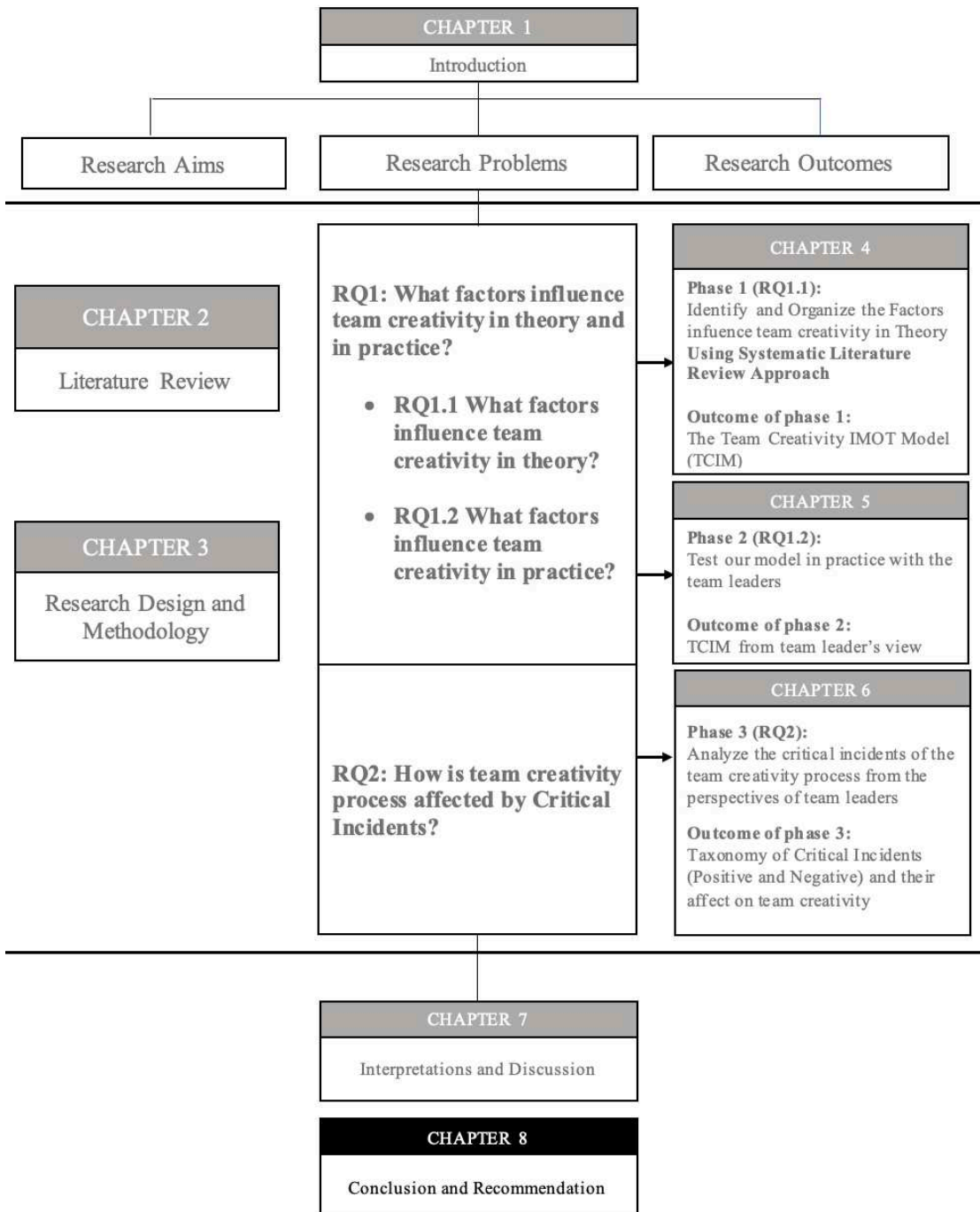
Major Findings	
<b>Definition of Team Creativity from Literature Review VS Field</b>	<p>There is alignment from the definitions of Team Creativity in both literature and in the field.</p> <p>Both perception of “group process and creative process” have been neglected in literature and in the field.</p>
<b>The factors influence Team Creativity in Literature VS Field</b>	<p>There is huge amount of work of Team Creativity but when looking at the field, they have another perception on <b>What are the factors influence Team Creativity.</b></p> <p>Theme 1 Factors enhancing team creativity:</p> <ol style="list-style-type: none"> <li>1. Team composition category has been significantly mentioned by all leaders in all industries.</li> <li>2. Some leaders revealed their opinions on Leadership styles. Within the team, anyone can be a leader based on the situation or a “Situation leader.”</li> <li>5. Interestingly, some leaders pointed out Thai culture, like “Brothers and Sisters” in their team.</li> <li>6. It has been observed that “Task Interdependence” and “Working Spaces for Creative Experiments” are not significant in enhancing team creativity, with contradicts to the literature.</li> </ol> <p>Theme 2 Factors hindering team creativity:</p> <ol style="list-style-type: none"> <li>1. One of the top five factors that can hinder team creativity is having a Bad team composition. This highlights the importance of team composition for leaders.</li> </ol>



	<p>2. Many leaders did not admit to having low levels of team creativity. Instead, they cited various factors such as the inability to commercialize, the COVID-19 situation, financial constraints, commander from top management, etc. (Factors outside team control).</p> <p>3. There are certain factors that can impede the creativity of a team, such as the specific contextual constraints in Thailand, such as the culture of hierarchy.</p>
<p><b>The difference between Creative industry VS Other industry</b></p>	<p>The Independent Samples T-Test 1,2 revealed the difference between Creative industry VS Other industry.</p> <p>1. Team learning and knowledge sharing, are notable distinctions between the creative industry and other industries.</p> <p>2. There is a significant difference in the creative process and learning dimensions of teams that contribute to low team creativity in the creative industry compared to other industries.</p>
<p><b>Critical incidents</b></p>	<p>1. After studying the factors that influence team creativity, it was found that team creativity is highly dependent on context and needs to be studied in specific situations. As a result, the CIT method was adapted for studying it.</p> <p>2. Team leaders in the creative industry reported more critical incidents than those in other industries.</p> <p>3. There are some critical incidents that relies on both positive and negative consequences.</p> <p>4. There are sequence of critical incidents reported by creative leaders.</p> <p>5. Unexpected constraints in some situations can result in both positive and negative consequences.</p> <p>6. In certain situations, Tension and Conflict can result in positive outcomes.</p> <p>7. Initial failure might lead to more creativity</p> <p>8. It is important to note that factors can transition between being part of a planned/designed of team creativity IMOT strategy and becoming Critical Incidents based on the specific situation and management.</p>

## CHAPTER 8

### CONCLUSION AND RECOMMENDATIONS



## 8.1 Summary of this research

This comprehensive research started on a multifaceted journey to explore the complex dynamics of team creativity. Our research journey can be summarized into a series of interconnected phases, each shedding new light on the multifaceted nature of team creativity and its underlying factors.

Our exploration began with a systematic literature review to understand the existing body of knowledge. This phase served as the foundation of our understanding of team creativity. After conducting a thorough review, we have identified and categorized a vast range of factors that influence team creativity. We have gained a wealth of insights from the literature. After acquiring extensive knowledge, we took on the challenging task of organizing and combining these factors into a logical model. This led to the creation of the Team Creativity IMOT Model (TCIM), which encompassed 274 factors and offered a comprehensive outlook on team creativity. The TCIM model allowed us to examine the complex network of influences that drive this phenomenon through a structured lens.

In order to validate and enrich the TCIM model, we sought the valuable perspectives of 33 experienced team leaders from various fields. Through in-depth interviews, we uncovered complex experiences and insights that illuminated the dynamic nature of team creativity. From these interviews, we identified two themes: factors that positively enhance team creativity and factors that negatively hinder it. This research provides a detailed understanding of the multifaceted nature of team creativity, surpassing theoretical boundaries.

The top-listed factors highlighted by our team leaders were precisely organized within the Input-Mediator-Output-Time (IMOT) framework, providing a structured

representation of the factors that drive team creativity within the TCIM model. To ensure the consistency of these qualitative findings, we employed a quantitative approach, inviting team leaders to rate eight dimensions related to team creativity. This dual approach reinforced the credibility and robustness of our research findings.

Yet, we recognized that while the TCIM model captured the range of factors influencing team creativity, it could not delve deeply into the complex processes of team creativity. To address this need, we introduced the Critical Incident Technique (CIT). CIT allowed us to focus on specific critical moments, uncovering the shaded interplay of factors during these instances. This adapted method, embedded within Research Question 2 on How is team creativity process affected by Critical incidents?, offered a deeper understanding of the team creativity process. Our application of CIT led us to a significant finding - Team creativity is highly influenced by the context in which it occurs. Our research revealed that exploring the contextual distinctions of team creativity is crucial. Therefore, we adapted CIT interview guide to better understand these complexities.

Our investigation of critical incidents for our sample, revealed a diverse range of 17 types of critical incidents that affect team creativity. These critical incidents occur more frequently in the creative industry, highlighting the unique challenges and opportunities faced by team leaders. Some critical incidents have positive and negative consequences, emphasizing their dual nature. We also observed sequences of critical incidents reported by creative leaders, highlighting the importance of understanding the dynamic flow of team creativity.

Additionally, we have distinguished between Team Creativity IMOT factors and Critical Incidents. The factors, such as team composition, team leadership, and

team culture, are elements that can be planned, designed, and managed to shape team creativity over the long term. These deliberate factors are instrumental in fostering a creative environment within a team.

However, Critical Incidents, such as "Unexpected constraints leading to positive or negative consequences" or "One person disrupting team dynamics," are specific, unplanned events that have short-term impacts on team creativity. These incidents often emerge unexpectedly during the team creative processes. For instance, the sudden appearance of unexpected constraints can stimulate creative problem-solving as teams are compelled to find innovative solutions within limitations. It is important to note that the short-term effects of critical incidents on team creativity are frequently context-dependent, influenced by the specific situation at hand and how they are managed.

This distinction highlights the dynamic interplay between factors that can be intentionally shaped and unplanned incidents within the realm of team creativity. Depending on their context and management, certain critical incidents can also be seen as factors influencing team creativity, blurring the lines between planned and unforeseen contributions to the creative process.

In conclusion, this research journey has provided a multi-dimensional understanding of team creativity. From the extensive literature review to the development of the Team Creativity IMOT (TCIM) model, from practitioner insights to the introduction of the Critical Incident Technique (CIT), from the finding of critical incidents to the disclosure of contextual dependencies, and from the distinguished between Team Creativity IMOT factors and Critical Incidents, this research emphasizes

the complexity and contextuality of team creativity. We acknowledge that exploring team creativity is an ongoing process that offers rich opportunities for further discovery and innovation.

## **8.2 Contributions to Theory and Practice**

### **8.2.1 Theoretical Contributions**

The study on team creativity, as described in the provided details, offers several important theoretical contributions to the field:

The development of the Team Creativity IMOT Model (TCIM) based on a systematic literature review is a significant theoretical contribution. This model serves as a comprehensive framework that summarizes a wide range of factors influencing team creativity. It provides a structured lens through which researchers and practitioners can examine the complex dynamics of team creativity. By incorporating 274 factors within the TCIM model, this research integrates and synthesizes a diverse range of factors that impact team creativity. This contributes to a more holistic understanding of the phenomenon by considering not only well-established factors but also those that may have been overlooked in previous research.

Moreover, the qualitative insights gained from interviews with 33 team leaders contribute to the theoretical understanding of team creativity. The identification of two overarching themes - factors that enhance and hinder team creativity - adds depth and shade to the field theoretical foundations. These insights provide a richer understanding of how team creativity operates in real-world settings. The organization of top-listed factors within the Input-Mediator-Output-Time (IMOT) framework adds a structured layer to the TCIM model. This application of a well-established framework enhances

the theoretical precision of this research by aligning it with existing models and theories in the field of team creativity.

The recognition of team creativity insightful dependency on context is a key theoretical contribution. By emphasizing the importance of studying team creativity in specific situations and adapting the Critical Incident Technique (CIT) for this purpose, this research acknowledges that context plays a critical role in shaping team creativity. This insight challenges the notion of a one-size-fits-all approach to understanding creativity within teams. The identification and exploration of 17 types of critical incidents in team creativity is a unique contribution. This qualitative exploration of specific moments and events enhances the theoretical understanding of team creativity by providing insights into the dynamics of creative processes at critical moments. It also emphasizes the dynamic and context-dependent nature of team creativity.

This research has introduced the distinctions between Team Creativity IMOT factors and Critical Incidents. It points out the complex relationship between planned and designed factors and unexpected situations, providing a more nuanced comprehension of how team creativity is affected. This adds value to the creativity and innovation research field by emphasizing the significance of taking into account both intentional and unforeseen elements.

Overall, this research theoretical contributions expand the existing knowledge on team creativity by offering a more comprehensive and contextually aware framework, integrating a wide range of factors, and shedding light on critical moments and contextual distinctions that influence team creativity. These contributions provide a foundation for future theoretical developments and empirical research in the field.

### **8.2.2 Practical Contributions**

The study on team creativity, as outlined in the provided details, offers several practical contributions that can benefit organizations, team leaders, and practitioners:

This research provides a deeper and more comprehensive understanding of team creativity. Practitioners can use the Team Creativity IMOT Model (TCIM) to identify and address specific factors that influence creativity within their teams. This practical framework can guide organizations in fostering a more creative work environment.

Team leaders can benefit from the practical insights gained from this research. By identifying both positive and negative factors influencing team creativity, leaders can make informed decisions to optimize team performance. They can leverage the TCIM model to proactively address hindrances and enhance enablers of creativity.

Moreover, from our first intention, we wanted to develop an assessment tool for team creativity. This research can be the first step that providing the elements of the TCIM model, along with the IMOT framework, in the future offer a structured approach for assessing team creativity. Therefore, organizations can use these tools to conduct systematic assessments of their teams' creative processes.

This research also highlights the significance of context in team creativity. Practitioners can use this insight to recognize that creativity is demonstrated differently in various situations. By considering the contextual factors identified in this research, organizations can tailor their creative strategies to suit specific contexts and industries.

The identification and analysis of critical incidents in team creativity provide practical insights into the real-world challenges and opportunities that teams face. Team leaders can learn from these incidents to better navigate critical moments and mitigate potential issues. Team leaders should thoroughly examine past critical incidents that



impacted team creativity. This includes incidents that either enhanced or hindered creativity. In addition to this, team leaders can use TCIM to categorize these incidents based on their inputs, mediators, and time. Thus, these critical incidents will add more understanding of general factors in TCIM.

The finding that creative leaders in the industry reported more critical incidents can guide organizations in creative industries. They can anticipate and manage the unique challenges and opportunities that come with their specific contexts, potentially leading to more effective creative processes.

Organizations can use the TCIM model and insights from this research as a basis for training programs aimed at enhancing team creativity. For instance, the customized training modules adapted to specific needs of each team. TCIM can be used to assess team current strengths and weaknesses in terms of evaluating the inputs (factors such as team composition), mediators (such as the creative process and team climate), time (such as time pressure and team longevity) and outputs (the creative solutions) by focusing on most influential factors that the team needs to improve.

Based on assessment findings, design training modules allow to address specific weaknesses. If the assessment focus on the mediators identified as crucial for enhancing team creativity. These training might include sessions on effective brainstorming techniques, conflict resolution, team communication, and decision-making etc. Thus, team members and leaders can be trained to recognize and leverage the factors that positively influence creativity while mitigating the impact of hindering factors.

This research also emphasizes the dynamic nature of team creativity. Organizations can use this understanding to foster a culture of continuous improvement

in creativity. They can adapt their strategies, processes, and leadership approaches in response to changing circumstances and emerging critical incidents.

In summary, this research offers useful and practical contributions by providing initial insights and elements that can help enhance team creativity in various organizational settings. It provides practitioners and organizations with a contextually aware understanding of team creativity, which enables them to promote innovation and creative problem-solving within their teams effectively.

### **8.3 Limitations**

This section describes the limitations of this research as the following:

- **Sample Size and Generalizability:** The sample size of 33 team leaders interviewed may be considered relatively small for drawing broad generalizations. The findings might not represent the full spectrum of team creativity experiences across all industries or contexts.
- **Self-reported data:** The data collected through interviews and rating scales rely on self-reporting by team leaders. This method may be subject to biases, including social desirability bias or recall bias, where participants might provide responses that align with perceived expectations or may not accurately remember past incidents.
- **Temporal limitation:** This research provides a snapshot of team creativity at a specific point in time. It does not account for potential changes in team dynamics, leadership, or contextual factors that might affect team creativity over time.

- **Cross-Cultural Variability:** This research may not account for cross-cultural differences in team creativity experiences. The findings might not apply universally across cultures with varying values, norms, and approaches to teamwork
- **Validity of CIT findings:** The Critical Incident Technique (CIT) relies on the accuracy of participants' recollections of critical incidents. Memory can be fallible, and there may be discrepancies or inaccuracies in participants' accounts.
- **Exclusion of team members:** This research primarily focuses on the perspectives of team leaders. It does not fully explore the experiences and viewpoints of team members, who may have unique insights into team creativity dynamics.
- **Focus on the team creativity process only (not output)**

## **8.4 Recommendations**

Based on the findings and contributions of this research on team creativity, here are several recommendations for both practitioners and researchers:

### **8.4.1 For Practitioners and Team Leaders**

- **Utilize the TCIM Model:** Implement the Team Creativity IMOT Model (TCIM) as a practical framework for understanding and enhancing team creativity within your organization. Use it to systematically identify, assess, and address the factors influencing creativity in your teams.
- **Contextual Awareness:** Recognize the importance of context in team creativity. Tailor your creative strategies and approaches to specific situations, industries,

and team compositions. Be flexible in your leadership and management styles to accommodate context-dependent factors.

- **Assessment and Diagnostics:** Conduct regular assessments of team creativity using the TCIM framework. This can help to diagnose strengths and weaknesses within your teams and guide the development of targeted interventions.
- **Training and Development:** Invest in training programs that focus on enhancing team creativity. Provide team members and leaders with the skills and knowledge needed to leverage enablers and mitigate hindrances to creativity.
- **Critical Incident Analysis:** Embrace the Critical Incident Method (CIT) as a tool for gaining deeper insights into the critical moments that impact team creativity. Analyze critical incidents to identify patterns and strategies for optimizing creative processes.
- **Continuous Improvement:** Foster a culture of continuous improvement in creativity. Recognize that team creativity is dynamic and subject to change over time. Be open to adapting strategies and processes based on emerging critical incidents and changing circumstances.

#### **8.4.2 For Researchers**

- **Longitudinal Studies:** Conduct longitudinal studies to track the evolution of team creativity over time. Explore how the factors identified in the TCIM model influence creativity at different stages of team development.
- **Cross-Cultural Research:** Investigate how cultural factors influence team creativity. Conduct cross-cultural studies to examine the applicability of the TCIM model in diverse cultural contexts and explore how cultural dimensions impact team creativity.

- **Quantitative Analysis:** Utilize quantitative research methods to validate and further refine the TCIM model. Conduct statistical analyses to assess the relative importance of different factors within the model.
- **Training interventions:** Develop and test training interventions based on the TCIM model. Assess the effectiveness of these interventions in enhancing team creativity in real-world organizational settings.
- **Further CIT research:** Expand the application of the Critical Incident Technique (CIT) to study team creativity in various contexts and industries. Investigate how critical incidents influence team creativity in crisis situations and high-pressure environments.
- **Future research** could expand beyond the team creativity process.

These recommendations provide a roadmap for both practitioners and researchers to leverage the insights and frameworks generated by this research to enhance team creativity, foster innovation, and contribute to the growing body of knowledge in this field.

## **8.5 Chapter Summary**

This chapter discussed important theoretical and practical contributions, presented the limitations of the research, and provides several recommendations for future research and direction.

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**APPENDICES**



**Appendix A: Systematic Literature Review (SLR) Summary table**

No.	Authors	Title	Journal	Sample and Method	Main Findings	Team creativity Dimensions
1	Adeel, A., Batool, S., Ali, R. (2018).	Empowering leadership and team creativity: understanding the direct-indirect path.	Business: Theory & Practice	Quantitative. Data was collected from two sources (343 Subordinates, 67 Supervisors) by temporally dividing data collection process into two points in time for independent, dependent, and mediating variables from employees of a bank operating in Pakistan	It was found that empowering leadership behavior affects the team level creativity of employees directly and indirectly through the mediation of team learning behavior and team psychological empowerment as team process and team emergent states respectively. The results indicated that empowering leadership enhances the learning potential of teams and team empowerment perception which in turn enhances team level creativity	<ol style="list-style-type: none"> <li>1. Empowering Leadership</li> <li>2. Team Learning Behavior</li> <li>3. Psychological Empowerment</li> </ol>
2	Adiguzel, Z. (2019).	Relationships among Leader Effectiveness, Learning Orientation, Effective Communication, Team Creativity and Service Innovation in the Service Sector.	Business & Economics Research Journal	Quantitative/Surveys. 348 questionnaires collected from white-collar employees were used for evaluation.	it was determined that leadership effectiveness and learning orientation have a positive impact on effective communication, team creativity, and service innovation. This indicates that if an organisation has effective leadership and learning orientation, it positively contributes to effective communication, team creativity, and service innovation in the service sector.	<ol style="list-style-type: none"> <li>1. Leader effectiveness</li> <li>2. Learning orientation</li> <li>3. Effective Communication</li> <li>4. Service innovation</li> </ol>
3	Aggarwal, I., & Woolley, A. W. (2019)	Team Creativity, Cognition, and Cognitive Style Diversity.	Management Science	Longitudinal study. They test the predictions in a longitudinal study with 112 MBA student project teams.	The paper introduces a new theoretical lens, the signal-detection perspective, which argues that cognitive diversity amplifies the signals to the location of critical cognitive resources within the team and aids in their detection, consequently enhancing the form of team cognition that is central to team creativity.	<ol style="list-style-type: none"> <li>1. Cognitive Style</li> <li>2. Transactive Memory System</li> <li>3. Team strategic consensus</li> </ol>
4	Akhtar, S., Khan, K. U., Hassan, S., Irfan, M., & Atlas, F. (2019).	Antecedents of task performance: An examination of transformation leadership, team communication, team	Journal of Public Affairs	Quantitative	Higher education requires best leaders and collaborative environment to stimulate staff and student because of facing more challenges and to make the educational institutions remain relevant in a competitive global context. Considering the fruitful	<ol style="list-style-type: none"> <li>1. Transformation leadership</li> <li>2. Team communication</li> <li>3. Team trust</li> </ol>

		creativity, and team trust			academic outcome, ideal leadership style and collaborative work are essential among teachers and students. Therefore, an empirical study was performed to investigate the effect of transformational leadership and team communication on task performance. The proposed model was verified by quantitative study to clarify the complex relationship between predictors and outcomes. Research data were collected from a sample of 273 master students from the University of Science and Technology of China. The collected data were examined through partial least square analysis technique. The results suggested that team perception of transformation leadership has positive effect on team communication and team trust to measure high task performance. In addition, team communication has positive effect on team trust, whereas team trust has a significant effect on team creativity, which enhances the task performance.	
5	Ali, A., Wang, H., Bodla, A. A., & Bahadur, W. (2021).	A moderated mediation model linking transactive memory system and social media with shared leadership and team innovation.	Scandinavian Journal of Psychology	Time-lagged, multi-sourced data are collected	This study examines how and to what extent social and technological factors promote shared leadership that leads to team innovation in knowledge work teams. It hypothesizes that a transactive memory system influence team innovation and shared leadership conduits the relationship between them. Additionally, the relationship effectiveness between the transactive memory system and shared leadership increases with the use of social media by team members. Time-lagged, multi-sourced data are collected from the information technology industry in China. In addition, we used a network-based measure to assess the level of shared leadership in teams. Empirical	<ol style="list-style-type: none"> <li>1. Transactive memory system</li> <li>2. Social media use</li> <li>3. Shared leadership</li> </ol>

					analysis found support for the hypotheses of this study. The results reveal that transactive memory system is a significant predictor of team innovation and the shared leadership channels the relationship between transactive memory system and team innovation. Furthermore, use of social media by team members amplifies the relationship between transactive memory system and shared leadership	
6	Ali, A., Wang, H., & Boekhorst, J. A. (2021).	A moderated mediation examination of shared leadership and team creativity: a social information processing perspective	Asia Pacific Journal of Management	Quantitative/Surveys	Research has mostly focused on how formal leadership can shape a climate for innovation, but we know little about how informal leadership, such as shared leadership, may affect this process. Departing from this dominant focus, we examine how shared leadership may have a positive influence on team processes and performance. Based on social information processing theory, we develop a moderated mediation model that examines the indirect effect of shared leadership on team creativity via a climate for innovation and further investigates the moderating effect of task uncertainty. Two survey-based field studies using multisource, multiwave data support the hypothesized model. The findings reveal that (1) shared leadership positively predicts a climate for innovation, (2) this relationship is stronger when the team faces task uncertainty, (3) a climate for innovation positively predicts team creativity, (4) shared leadership predicts team creativity through the mediating effect of a climate for innovation, and (5) this mediation effect is stronger when task uncertainty is high.	<ol style="list-style-type: none"> <li>1. Shared leadership</li> <li>2. Climate for innovation</li> <li>3. Task uncertainty</li> </ol>

7	Ali, A., Wang, H., & Johnson, R. E. (2020).	Empirical analysis of shared leadership promotion and team creativity: An adaptive leadership perspective	Journal of organizational behavior	Quantitative/Surveys	Promoting shared leadership in teams and enhancing team creativity is aided by complementarity between leader and team member characteristics. We integrate insights from social learning theory and dominance complementarity perspective with the team leadership and creativity literature to explore the facilitating role of formal participative leadership for enhancing team creativity indirectly by promoting shared leadership. The relationships among formal participative leadership, shared leadership, and team creativity are bounded by team voice behavior and team creative efficacy.	<ol style="list-style-type: none"> <li>1. Participative leadership</li> <li>2. Shared leadership</li> <li>3. Team voice behavior</li> <li>4. Team creative efficacy</li> </ol>
8	Ali, A., Wang, H., Khan, A. N., Pitafi, A. H., & Amin, M. W. (2018).	Exploring the knowledge-focused role of interdependent members on team creative performance	Asian Business & Management	Quantitative/Surveys. Data collected from 58 knowledge work teams.	The results derived from data collected from 58 knowledge work teams present a full mediation effect of TMS between task interdependence and team creative performance. Moreover, transformational leadership has a significant positive moderation effect between TMS and team creative performance.	<ol style="list-style-type: none"> <li>1. Task interdependence</li> <li>2. Transactive memory systems</li> <li>3. Transformational leadership</li> </ol>
9	Ali, I., Ali, M., Leal-Rodríguez, A. L., & Albort-Morant, G. (2019).	The role of knowledge spillovers and cultural intelligence in enhancing expatriate employees' individual and team creativity	Journal of Business Research	Quantitative. The data were collected from 152 expatriate employees working with HCNs in different organizations in Saudi Arabia.	The study shows a positive association between expatriate employees' knowledge sharing (with HCNs and other expatriate employees) and individual and team creativity. Moreover, expatriate employees' individual cultural intelligence moderates the relationship between expatriate employees' knowledge sharing with HCNs and individual and team creativity.	<ol style="list-style-type: none"> <li>1. knowledge sharing</li> <li>2. individual cultural intelligence</li> <li>3. individual creativity</li> </ol>
10	Anderson, N., Hardy, G., & West, M. (1992).	Management team innovation	Management Decision	Qualitative. Two case studies from NHS.	Describes how the National Health Service management has responded to pressure for change as a "critical case site" for investigation of the importance of innovativeness. What factors help or hinder innovation? What distinguishes highly innovative	<ol style="list-style-type: none"> <li>1. vision</li> <li>2. participative safety</li> <li>3. climate for excellence</li> <li>4. support for innovation</li> </ol>

					teams? How does the process of innovation develop over time? What practical recommendations can be made to facilitate innovation? Identifies four significant factors: vision, participative safety, a climate for excellence, and support for innovation. Describes a programme of recommended practical interventions.	
11	Anderson, N., Potočník, K., & Zhou, J. (2014).	Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework	Journal of Management	Meta-analysis	The trends of creativity and innovation was shown in four levels of analysis: individual, team, organizational and multi-level.	<ol style="list-style-type: none"> <li>1. Absorptive capacity/ intellectual capital</li> <li>2. Availability of resources</li> <li>3. Bureaucratic practices</li> <li>4. Climate for excellence</li> <li>5. Competition</li> <li>6. Complexity/ regulative, normative and cultural-cognitive institutional forces/ harmonization/ decentralization/ reorganization</li> <li>7. Conflict management/ knowledge creation/ improvisation/ minority dissent</li> <li>8. Conformity value</li> <li>9. Conscientiousness/ extraversion/ neuroticism/ agreeableness</li> <li>10. Conservation value/ congruence of values</li> <li>11. Coworker support/ creativity expectations by coworkers</li> <li>12. Creative process engagement</li> <li>13. Customer input/ customer affect-based trust</li> <li>14. Decision comprehensiveness/ transformational leadership</li> <li>15. Diffusion process</li> <li>16. Directive leadership</li> <li>17. Evaluation/ justice</li> <li>18. Expertise/ experience/ membership change</li> <li>19. Feedback</li> <li>20. Formalization/ structural integration</li> <li>21. Geographic distribution of R&amp;D activity/ environmental</li> </ol>

						<p>uncertainty/ turbulence/ dynamism/ urbanization/ community wealth/ population growth/ unemployment rate</p> <p>22. Growth need strength</p> <p>23. Heterogeneity (diversity)/ cognitive style/ multidisciplinary</p> <p>24. Heterogeneity/ diversity</p> <p>25. HR practices/ environmental perceptions and discretionary slack</p> <p>26. HR practices/ top managers' demographic characteristics (e.g. ownership, racial and gender diversity)</p> <p>27. Identity comprehension</p> <p>28. Influence-based leadership</p> <p>29. Information exchange/ problem solving style/ team participation</p> <p>30. Innovation climate/ reflexivity climate/ climate for psychological safety and personal initiative</p> <p>31. Knowledge search and spillover (transfer)/ knowledge stock/ social network</p> <p>32. Learning orientation/ mastery orientation</p> <p>33. LMX</p> <p>34. National culture (power distance, masculinity, uncertainty, avoidance, individualism, social face)/ empowerment</p> <p>35. Need for cognition</p> <p>36. No. of employees/ sales/ market share/ total assets</p> <p>37. Openness to experience</p> <p>38. Organization strategy/ innovation strategy</p> <p>39. Participative leadership/ leader behaviors/ unconventional leadership</p> <p>40. Participative Safety/ vision/ support for innovation/ task and goal orientation/ conflict</p> <p>41. Presence of creative coworkers</p> <p>42. Proactive personality/ creative</p>
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						<p>personality/ creative role identity</p> <p>43. Reflective climate</p> <p>44. Reflexivity</p> <p>45. Regulatory focus: prevention</p> <p>46. Regulatory focus: promotion</p> <p>47. Resource diversity and quality/ resource exchange</p> <p>48. Rewards</p> <p>49. Self-esteem and self-monitoring/ (creative, role breadth) self efficacy</p> <p>50. Slack resources</p> <p>51. Social network</p> <p>52. Supervisory expectations for creativity/ supervisory developmental feedback and non-close monitoring</p> <p>53. Supervisory support/ supervisory empowerment behaviors/ supervisory benevolence</p> <p>54. Systematic thinking style</p> <p>55. Task and Goal interdependence</p> <p>56. Task and Goal interdependence/ size</p> <p>57. Team climate</p> <p>58. Team learning</p> <p>59. Time pressure</p> <p>60. Transactional leadership</p> <p>61. Transformational and transactional leadership</p> <p>62. Transformational and transactional leadership/ management support/ top management leadership/ cooperative conflict management</p> <p>63. Transformational leadership: Supervision</p> <p>64. Transformational leadership: leadership</p> <p>65. Willingness to take risks/ career commitment/ resources for creativity/ organizational identification/ job involvement/ information privacy</p>
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12	Asencio, R., Murase, T., Chollet, B., DeChurch, L. A., & Zaccaro, S. J. (2023).	Bridging the boundary without sinking the team: Communication, identification, and creativity in multiteam systems	Group Dynamics: Theory, Research, and Practice	Method: We use a sample of 334 individuals working in 128 project teams embedded in 32 MTSs. Participants took part in an 8-week project (Mage = 21; 53% females) that linked courses in Environmental Ecology, Social Psychology, and Innovation Management in two U.S.-based universities and France-based university. Psychometric measures include communication networks and team and MTS identification. Subject Matter Experts (SMEs) rated creativity of the final deliverable.	In this research, we show that between-team communication, which facilitates the development of identification with the MTS, comes at a cost to identification with the team. We also identify the role of MTS and team identification in MTS creativity. This research advances our understanding of the complex relationship between the component team and the MTS in which they are embedded. The present study sheds light on how MTS component teams can navigate the inherent complexities of their collaboration structure and bridge boundaries without sinking the team.	<ol style="list-style-type: none"> <li>1. Communication networks</li> <li>2. Within-team communication</li> <li>3. Between-team communication</li> <li>4. Team identification</li> </ol>
13	Azam, O., & Rizvi, S. T. H. (2021).	Narcissistic leadership and team creativity: Assessing the mediating role of information searching effort and moderating role of environmental uncertainty	Pakistan Journal of Commerce and Social Sciences	Quantitative/Surveys. Data collection was carried out through self administrative questionnaires from a total of 300 respondents from IT departments and higher educational institutions that are based in the twin cities (Rawalpindi and Islamabad) of Pakistan by using simple random sampling.	The aim of this research is to assess impact of narcissistic trait of leadership on team creativity. Focus of our research will be to analyze the mediating effect of information searching effort along with the moderating effect of environmental uncertainty between narcissistic leadership and team creativity under the concept of attention-based theory and social information processing (SIP) theory. Findings of this study confirm that information searching effort positively mediates between narcissistic leadership with team creativity. Also, environmental uncertainty moderates between narcissistic leadership and team creativity. This research expands the application of attention theory for	<ol style="list-style-type: none"> <li>1. Narcissistic Leadership</li> <li>2. Information Searching Effort</li> <li>3. Environmental Uncertainty</li> </ol>

					enhancing the creativity of team members.	
14	Baer, M., Oldham, G. R., Jacobsohn, G. C., & Hollingshead, A. B. (2008).	The personality composition of teams and creativity: The moderating role of team creative confidence.	Journal of Creative Behavior	Survey and Experimental tasks for Time T1 and T2	The authors talk about Personality components (Big 5 personality) of teams, that is, teams composed primarily of individuals with <b>personality</b> characteristics conducive to team creativity (e.g., high extraversion, high openness to experience, low conscientiousness, high neuroticism, low agreeableness) would show synergistic increases in creativity when they experienced high levels of “team creative confidence”, a shared understanding that the team is more creative than each team member individually.	1. Team personality 2. Team creative confidence
15	Bagheri, A., Akbari, M., & Artang, A. (2020).	How does entrepreneurial leadership affect innovation work behavior? The mediating role of individual and team creativity self-efficacy.	European Journal of Innovation Management	Quantitative/Surveys	The analysis supported that CEOs' entrepreneurial leadership improves their employees' innovation work behavior through enhancing their individual and team creativity self-efficacy.	1. Team creativity self-efficacy 2. Individual creativity self-efficacy 3. Entrepreneurial leadership
16	Bam, L., De Stobbeleir, K., & Vlok, P. J. (2019).	Outcomes of team creativity: a person-environment fit perspective	Management Research Review	Literature/Conceptual paper	Outcomes of TC from Cirella (2014)	-
17	Bantel, K. A., & Jackson, S. E. (1989).	Top management and innovations in banking: Does the composition of the top team make a difference?.	Strategic management journal	Quantitative/Surveys	The relationship between the social composition of top management teams and innovation adoptions was examined in a sample of 199 banks. The following characteristics of top management teams were examined: average age, average tenure in the firm, education level, and heterogeneity with respect to age, tenure, educational background, and functional background. In addition, the effects of bank size, location (state of operation), and team size were assessed. Results indicate that more innovative banks are	"Team composition such as Avg. age, Avg. tenure in the firm, education level and heterogeneity with respect to age, tenure, educational background and functional background"

					managed by more educated teams who are diverse with respect to their functional areas of expertise. These relationships remain significant when organizational size, team size, and location are controlled for.	
18	Barczak, G., Lask, F., & Mulki, J. (2010).	Antecedents of Team Creativity: An Examination of Team Emotional Intelligence, Team Trust and Collaborative Culture	Creativity and Innovation Management	Quantitative/Using a survey of 82 student teams at a large university in the northeast United States	The findings suggest that team emotional intelligence promotes team trust. Trust, in turn, fosters a collaborative culture which enhances the creativity of the team. Cognitive trust also moderates the relationship between collaborative culture and team creativity.	<ol style="list-style-type: none"> <li>1. Interpersonal trust</li> <li>2. Collaborative culture</li> <li>3. Team emotional intelligence</li> </ol>
19	Belitski, M., & Herzig, M. (2018).	The jam session model for group creativity and innovative technology.	The Journal of Technology Transfer	Mixed methods. This study builds on the original seven factor model developed by Herzig and Baker (2014) through literature reviews, surveys and in-depth interviews with jazz musicians	This paper builds on the analysis of factors observed at jazz jam sessions facilitating team creativity and improvisation as a model for managing organizational innovation. The model was established through detailed observations, surveys, historical research, and interviews. Even though the jazz metaphor has been used as a model for organizational improvisation the discussions rarely extend beyond the improvisational process of idea generation (Frishammar et al. in Creativity Innov Manag 2:179, <a href="#">2016</a> ) towards a comprehensive model for team creativity and effective organizational management (Santos et al. in Creativity Innov Manag 24(4):645–658, <a href="#">2015</a> ). The seven factor Jam Session Model for Group Creativity and Innovative Technology is built from a comprehensive analysis of the jam session process and exemplified with case studies of leading innovative companies such offering a theoretical and practical model for managing and facilitating group creativity and innovative technology.	<ol style="list-style-type: none"> <li>1. Individual competence and knowledge of the field</li> <li>2. Practicing improvisation as the ability to overcome self-consciousness</li> <li>3. Establishing a mentoring system and role models</li> <li>4. Democracy and collaboration</li> <li>5. Leaders and side(wo)men</li> <li>6. Community support</li> <li>7. Continuous evaluation systems</li> </ol>

<p>20</p>	<p>Berthold, J. (2015).</p>	<p>Stimulating team creativity: The influence of swift-trust on the team creativity process.</p>	<p>Journal of Sustainability Management</p>	<p>Literature review/Conceptual paper</p>	<p>The primary goal of this paper is to answer a central question: does swift-trust stimulate the team creativity process? Most literature pertaining to swift-trust and creativity focuses on the individual within the construct of a temporary systems environment. Most literature on creativity emphasizes the pro-active motivational state of the individual while team creativity is generally discussed as an outcome. Trust and knowledge sharing have been implicated in the creation of a collaborative environment that leads to creativity. Yet, little attention has been placed on the early stimulation of team creativity through the careful manipulation of the team construct with swift-trust. In today's competitive environment, companies need to continually innovate in order to survive. Creativity, the first step in innovation, can be stimulated by swift-trust. By building on the works of Goodman and Goodman (1972 &amp; 1976), Meyerson et al. (1996) and others, a clearer picture of the connection between trust and creativity has been drawn. The formation of a collaborative environment through swift-trust can be quickly accomplished. The works of Robert et al. (2009) and Barczak (2010) expand the proposition of early trust and creativity development by suggesting the concepts of trust and creativity are fluid and can be strengthened or weakened over time. History and leader-member relationships can affect the development of the collaborative environment leading to team creativity. Overall, however, results confirm a proposition that swift trust leads to the rapid establishment of a collaborative</p>	<p>ANTECEDENTS TO THE FORMATION OF SWIFT TRUST  1. TEAM COMPOSITION  1.1 Diverse pool of talent  1.2 Limited working histories  1.3 Limited prospects of working together again  1.4 Limited team size  2. TEAM TASKING  2.1 Complex tasking  2.2 Non-routine tasking  2.3 Time sensitive tasking (i.e., deadlines)  2.4 Important tasking  3. LEADER – MEMBER RELATIONSHIP (MODERATING FACTOR #1)  4. WORKING HISTORY (MODERATING FACTOR #2)  5. TEAM ADJUSTMENTS</p>
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					team environment which leads to team creativity.	
21	Bilal, A., & Ahmad, W. (2019).	Impact of Team Goal Orientation and Information Exchange on Creativity and Innovation in Advertising Creative Teams of Pakistan.	Business and Economic review	Quantitative/Surveys	The findings indicate that team goal orientation induces information exchange among team members, which leads to organizational innovation through team creativity in the advertising agencies of Pakistan	<ol style="list-style-type: none"> <li>1. team goal orientation</li> <li>2. information exchange</li> </ol>
22	Binyamin, G., & Carmeli, A. (2017).	Fostering members' creativity in teams: The role of structuring of human resource management processes	Psychology of Aesthetics, Creativity, and the Arts	Quantitative/Surveys	Work teams are central to organizations as they constitute a vital mechanism in solving complex problems creatively. However, teams are often dysfunctional and do not reap their members' creative potential. We suggest that structuring, which is often associated with fixation, may nevertheless be instrumental for creativity. Specifically, we developed and tested a model in which structuring of human resource management (HRM) processes helps organizations to build high quality teams (with high human and social capital). We posit that being a member of such a team increases team members' growth satisfaction, and thereby team member creativity. The results of Multilevel Structural Equation Modeling (MSEM) indicated a more complex pattern of relationships than hypothesized: the relationship between the structuring of HRM processes and team member creativity was shown to depend on the level of structuring. Low levels of structuring enhanced team member creativity through greater team human and social capital and growth satisfaction. By contrast, high levels of structuring led to a decline in growth satisfaction but not in creativity, but although growth	<ol style="list-style-type: none"> <li>1. Structuring of HRM processes</li> <li>2. Team human capital</li> <li>3. Team social capital</li> <li>4. Growth satisfaction</li> </ol>

					satisfaction decreased, the positive effect of structuring on team human and social capital suppressed its negative effect.	
23	Björkman, H. (2004).	Design dialogue groups as a source of innovation: factors behind group creativity.	Creativity and Innovation Management	Pilot study (Quantitative)	<p>Sif – a Swedish national trade union for white-collar workers in Industry – has recognized the importance of enhancing its service innovation processes through careful listening to its members. This article will discuss the Design Dialogue Group (DDG) methodology that has been developed through collaborative research between Sif and the Fenix Research Program, in order to enhance group creativity and organizational learning. The emphasis of this paper is restricted to the issue of enhancing group creativity, and literature and empirical data will be used in order to discuss the factors enabling and restraining creativity. The major assumption behind this study is that many factors behind group creativity can be controlled. Thus, a careful design of the group creativity process would increase the likelihood for success since measures to enhance creative behaviours and to avoid pitfalls can be planned and/or taken by a group moderator. In short, the aims of this study are twofold: (1) to relate prior research contributions to DDG experiences in order to augment our understanding concerning factors enhancing and threatening creativity in DDG settings and (2) to systematize these findings into a set of proposed design principles related to domain-relevant skills, creativity-related processes, and task motivation. These propositions concern the recruitment of participants, group characteristics, and group processes.</p>	<p>1. Domain-relevant skills Includes: 1.1 knowledge about the domain 1.2 requisite technical skills 1.3 special domain relevant 'talent' or expertise Depends on: - the participants - the moderator</p> <p>2. Creativity-relevant processes Includes: 2.1 appropriate cognitive style 2.2 implicit or explicit knowledge of heuristics for generating novel ideas 2.3 conducive work style Depends on: - group composition - work procedures - the moderator</p> <p>3. Task motivation Includes: 3.1 attitudes towards the task 3.2 perceptions of one's own motivation for undertaking the task Depends on: - intrinsic motivation toward the task - abilities to control extrinsic motivation factors - the creative climate</p>

24	Blomberg, A., Kallio, T., & Pohjanpää, H. (2017).	Antecedents of organizational creativity: drivers, barriers or both?.	Journal of Innovation Management	Literature review/Conceptual paper	<p>This paper reviews academic journal articles and scholarly books focusing on organizational creativity and constructs a schematic representation of the antecedents of organizational creativity, i.e. of the associated drivers and barriers. The literature on organizational creativity is reviewed using a traditional review technique. The focus is especially on more recent developments of the discourse, and therefore this work can be labeled as a state-of-the-art review. The review shows that drivers have clearly been studied more extensively than barriers. It was also recognized that the predominant approach among organizational creativity scholars is to dichotomize the factors influencing organizational creativity, more specifically to discuss the antecedents of creativity mostly from the viewpoint of drivers. In some cases, the antecedents are discussed from the perspective of barriers, but only rarely has it been recognized that the very same factor may either enhance or inhibit creativity. In this paper, such factors are called 'either-or factors'. The paper suggests that the organizational creativity discourse should acknowledge that it is not enough to understand what enhances organizational creativity but also which kind of issues inhibit it and, especially, which factors may work either against or toward creativity under different circumstances. The review suggests that the majority of factors are most likely either-or by nature, although it has been overlooked in the discourse due to the dichotomizing tendency</p>	
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25	Bodla, A. A., Tang, N., Jiang, W., & Tian, L. (2018)	Diversity and creativity in cross-national teams: The role of team knowledge sharing and inclusive climate	Journal of Management & Organization	Quantitative/Surveys from a sample of 60 cross-national research teams	They tested the hypotheses with data from a sample of 60 cross-national research teams from several universities in China. The results support the hypothesized relationships among inclusive climate, team knowledge sharing, and team creativity.	<ol style="list-style-type: none"> <li>1. Diversity: Perceived deep level and surface-level diversity</li> <li>2. Knowledge sharing</li> <li>3. Inclusive climate</li> </ol>
26	Bogilović, S., Černe, M., & Škerlavaj, M. (2017)	Hiding behind a mask? Cultural intelligence, knowledge hiding, and individual and team creativity	European Journal of Work & Organizational Psychology	Quantitative/Surveys. A field study of 621 employees among 70 team.	A field study of 621 employees nested among 70 teams revealed that individual knowledge hiding is negatively related to individual creativity and that cultural intelligence moderates the relationship between knowledge hiding and creativity at an individual level. A quasi-experimental study of 104 international students nested in 24 teams replicated and extended these findings by implying that individual knowledge hiding is also negatively related to team creativity.	<ol style="list-style-type: none"> <li>1. Knowledge hiding</li> <li>2. Cultural intelligence</li> </ol>
27	Boon, A., Vangrieken, K., & Dochy, F. (2015)	Team creativity versus team learning: transcending conceptual boundaries to inspire future framework building.	Human Resource Development International	A questionnaire consisting of a range of team creative and learning processes was developed and validated among 112 design teams encompassing 540 employees.	The theoretically expected difference between team creativity and team learning (i.e. the aspect newness) was not supported by our empirical results. A five-factor model – consisting of team creative efficacy, facilitating team processes, basic team processes, error communication, and co-construction was validated. This study contributes to the present literature by showing that future theorising on team creative processes can certainly draw inspiration from the team learning literature in several ways.	<ol style="list-style-type: none"> <li>1. Conflict management</li> <li>2. Improvisation</li> <li>3. Information exchange</li> <li>4. Knowledge creation</li> <li>5. Minority dissent</li> <li>6. Problem-solving style</li> <li>7. Team Reflexivity</li> <li>8. Team participation</li> </ol>
28	Burch, G. F., Burch, J. J., & Batchelor, J. H. (2019)	Group Creative Problem Solving: The Role of Creative Personality, Process and Creative Ability	Quality Innovation Prosperity / Kvalita Inovácia Prosperita	Quantitative. Individual personality, creative personality, and divergent thinking skills were collected from 349 students at a large public university in the southeast US. These	Group creative personality adds approximately 36 percent more explanatory power than cognitive ability and traditional personality measures in predicting team creativity. Creative processes, like team divergent thinking ability, further increased the	<ol style="list-style-type: none"> <li>1. Creative Personality</li> <li>2. Divergent thinking ability</li> <li>3. Personality</li> <li>4. Cognitive ability</li> </ol>



				students were then randomly assigned to 105 teams where they developed a novel product. Individual attributes were averaged to create team attributes that were used to determine correlations with the product creativity. Hierarchical regression was used to evaluate incremental explanatory values for each of the independent variables.	R2 of our model from 0.54 to 0.65 demonstrating that team processes affect team creativity.	
29	Cai, W., Lysova, E. I., Khapova, S. N., & Bossink, B. A. G. (2019)	Does Entrepreneurial Leadership Foster Creativity Among Employees and Teams? The Mediating Role of Creative Efficacy Beliefs	Journal of Business & Psychology	Quantitative/Surveys. Survey data were collected from multiple sources, including 43 leaders and 237 employees in eight Chinese companies.	Cross-level relationships are tested by means of a hierarchical linear modeling analysis (HLM). The results reveal that entrepreneurial leadership is positively related to employee and team creativity, and these relationships are found to be mediated by both employee creative self-efficacy and team creative efficacy. Furthermore, team creative efficacy is found to exert a cross-level mediating influence on the entrepreneurial leadership-employee creativity relationship.	<ol style="list-style-type: none"> <li>1. Entrepreneurial leadership</li> <li>2. Creative self-efficacy</li> <li>3. Team creative efficacy</li> </ol>
30	Chen, C., Feng, J., Liu, X., & Yao, J. (2021).	Leader humility, team job crafting and team creativity: The moderating role of leader-leader exchange.	<i>Human Resource Management Journal</i>	Quantitative/Surveys	Despite an increasing number of studies on leader humility, the relationship between leader humility and team creativity needs further exploration. Using the connectionist network model, we propose that leader-leader exchange (LLX), the upward exchange relationship of a team's direct supervisor, moderates the effect of leader humility on team job crafting, and this in turn affects team creativity. We test our hypotheses using a sample of 286 employees in 59 teams with a multiple-source, time-lagged research design. Our conclusions are as follows: (a) for team leaders with high LLX, leader	<ol style="list-style-type: none"> <li>1. Leader humility</li> <li>2. Leader-leader exchange</li> <li>3. Team job crafting</li> </ol>

					<p>humility is positively related to team job crafting, whereas for team leaders with low LLX, the relationship between leader humility and team job crafting is negative; (b) team job crafting is positively related to team creativity and (c) team job crafting mediates the effect of the interaction between leader humility and LLX on team creativity.</p>	
31	Chen, C., & Liu, X. (2020).	Linking team-member exchange differentiation to team creativity.	Leadership & Organization Development Journal	Quantitative/Time-lagged field survey	<p>Using SIP theory as a basis to develop our theoretical model, our primary objective for this study was to understand how and when TMX differentiation affects team creativity. Results from 331 employees and 68 team leaders supported all four hypotheses.</p> <p>Potential limitations and future directions Despite theoretical and practical contributions, this research has several potential limitations that offer promising directions for future research. Organization and cultural differences may influence employees' attitudes and behaviors. Second, although the multiple-source, time-lagged design of our studies can alleviate some concern regarding common method bias, reverse causality is still a possibility. Third, we investigate how and when TMX differentiation affects team creativity only focusing on the mediating role of team proactivity and the moderating role of LMX based on SIP theory.</p> <p>Further research can continue to build on these findings and employ additional mediators.</p>	<ol style="list-style-type: none"> <li>1. TMX differentiation</li> <li>2. Team proactivity</li> <li>3. LMX</li> </ol>
32	Chen, M. H., & Agrawal, S. (2017).	Do communication barriers in student teams impede creative behavior in the long	Thinking Skills and Creativity	Quantitative/Time-lagged	<p>Although several factors shaping team creativity have been examined before, communication barriers have received relatively less attention. Therefore, to add onto this research, we tested this</p>	<ol style="list-style-type: none"> <li>1. Communication barriers</li> <li>2. Entrepreneurial leadership</li> <li>3. Knowledge sharing</li> <li>4. Expressive ties</li> <li>5. Team learning</li> </ol>

		run?—A time-lagged perspective.			interrelationship in this study including several intervening variables. Samples were collected from forty undergraduate students over a period of four and a half months in a time-lagged fashion. Confirmatory factor analysis and structural equation modeling were used to test the hypothesized conceptual model. Results revealed that communication barriers during the initial stages of teamwork affected knowledge sharing and expressive ties negatively. However, early leadership was able to overcome their deleterious effects. Therefore study findings emphasize that it is imperative for the leader to focus on <u>team communication</u> and convalesce it. It was also found that knowledge sharing and expressive ties facilitated team learning during the middle stages of teamwork. Furthermore, this study highlighted that team learning is a potential precursor to instigate creative minds in students. All the above-mentioned variables acted as crucial antecedents to team's creativity. We conclude that entrepreneurship programs do have a positive impact on <u>student behavior</u> and provide a suitable environment to stimulate creativity and team skills.	
33	Chen, M. H., & Chang, Y. C. (2005).	The dynamics of conflict and creativity during a project's life cycle: a comparative study between service-driven and technology-driven teams in Taiwan.	International Journal of Organizational Analysis	Quantitative/Surveys	This research focuses on examining the dynamics of task and interpersonal conflict related to the creativity of teams over five stages of a project's life cycle. Data were collected from 142 respondents of information system development project teams of a service-driven type, and from 106 respondents of new product development teams of a technology-driven type. Results indicate that interpersonal conflict has a negative	<ol style="list-style-type: none"> <li>1. Project life cycle</li> <li>2. Task conflict</li> <li>3. Interpersonal conflict</li> </ol>

					impact on creativity for a service-driven project team. However, task conflict has a positive impact on creativity for a technology-driven project team. The findings suggest that managing different types of project teams necessitates concern with the variations of conflict and creativity over a project's life cycle.	
34	Chen, M.-H. (2006).	Understanding the Benefits and Detriments of Conflict on Team Creativity Process.	Creativity and Innovation Management	Quantitative/Surveys. Two studies were conducted in this paper. Study one focuses on collecting data from service-driven project teams, whereas study two focuses on collecting data from technology-driven project teams.	This paper focuses on examining the degree of conflict that the different types of project teams experienced, and more specifically this paper seeks to understand the benefits and detriments of conflict on the team creativity process. Furthermore, this paper shows that the project life cycle is a significant moderator of the conflict-creativity relationship in different project teams.	1. Team conflict
35	Chi, N.-W., & Lam, L. W. (2021).	Is Negative Group Affective Tone Always Bad For Team Creativity? Team Trait Learning Goal Orientation as the Boundary Condition.	Group & Organization Management	Quantitative/Surveys (Two-wave)	Although previous studies have found that positive group affective tone is generally good for team creativity, the reported effects of negative group affective tone (NGAT) are mixed. Drawing on the team goal orientation composition literature, we propose that team trait learning goal orientation (TTLGO; aggregated level of team members' trait learning goal orientation) will moderate the relationship between NGAT and team creativity. Specifically, NGAT will be positively related to team creativity when TTLGO is high but becomes negative when TTLGO is low. We further theorize that team information exchange accounts for this moderating effect. Employing a multiple-source and time-lag design, we conducted two studies to test the hypotheses. In Study 1, we collected data from 270 information technology engineers working in 62 R&D teams in a	1. PGAT and NGAT 2. TTLGO. Team Trait Learning Goal Orientation

					software development company and examined the moderating effect of TTLGO on the NGAT-team creativity relationship. In Study 2, we replicated the findings of Study 1 and further tested the mediating role of team information exchange (i.e., Hypothesis 2) using data from 237 members of 43 diversified teams (e.g., R&D, advertising and marketing, technical services, and quality improvement). The results of these two studies support our hypotheses.	
36	Choi, H. S., & Thompson, L. (2005).	Old wine in a new bottle: Impact of membership change on group creativity.	Organizational Behavior and human decision processes	Experimental study	The purpose of this study was to investigate the impact of membership change on group creativity. Based on the literature suggesting stimulating effects of membership change in groups, we hypothesized that membership change would enhance the creativity of groups. Membership change involved randomly rotating a subset of group members among groups during a series of creative tasks. Using an idea generation paradigm, we compared the creativity of open groups (i.e., groups that experienced a change in their membership across tasks) with that of closed groups (i.e., groups whose membership was invariant across tasks) in two experiments. In both experiments, we found that open groups generated more ideas and more different kinds of ideas than did closed groups. Moreover, Experiment 2 revealed that it was the productivity of "newcomers" (measured in terms of their creative idea generation in a previous task) that exerted a positive impact on groups. We also found that the entry of more productive newcomers increased the creativity of "oldtimers" (i.e., people who remained in one group across tasks).	1. Membership change

37	Cirella, S., Radaelli, G., & B. Shani, A. (2014)	Team creativity: A complex adaptive perspective	Management Research Review	Literature Review	<p>The great number of concepts found in literature are organized into a framework that distinguishes relevant inputs that can affect team functioning; relevant mediators for TC; and TC outcomes. The framework is reviewed and discussed within the context of the social systems in which the team is embedded.</p>	<ol style="list-style-type: none"> <li>1. Autonomy</li> <li>2. Basic demographics (age, sex and education)</li> <li>3. Bridging different realities</li> <li>4. Budget</li> <li>5. Clarity of objectives</li> <li>6. Cognitive skills</li> <li>7. Collaboration</li> <li>8. Collaboration/competition</li> <li>9. Communication patterns</li> <li>10. Conflicts</li> <li>11. Conflicts over leadership</li> <li>12. Conformity vs dissent, debate and competing views</li> <li>13. Culture</li> <li>14. Democratic/Autocratic leadership</li> <li>15. Divergent/convergent thinking</li> <li>16. Empathy</li> <li>17. Energy zones</li> <li>18. Fear of evaluation</li> <li>19. Group emotional tone</li> <li>20. High care</li> <li>21. Highly involve work systems</li> <li>22. Individual creativity</li> <li>23. Inside/Outside networks</li> <li>24. Leader creativity</li> <li>25. Leadership within/outside the team</li> <li>26. Learning community</li> <li>27. Majority/minority dynamics</li> <li>28. Management skills and knowledge</li> <li>29. Maturity of relationships</li> <li>30. Membership changes and extension of the group</li> <li>31. Motivation</li> <li>32. Participation in decision-making</li> <li>33. Personal integrity</li> <li>34. Personality</li> <li>35. Physical spaces</li> <li>36. Prior experience in the task</li> <li>37. Professional networks</li> <li>38. Psychosocial safety/trust</li> </ol>
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						<ul style="list-style-type: none"> <li>39. Quality and support for innovation</li> <li>40. Quality of relationships</li> <li>41. Safety</li> <li>42. Skills, abilities and knowledge</li> <li>43. Social networks</li> <li>44. Socialization process</li> <li>45. Team cohesiveness</li> <li>46. Team dimensions</li> <li>47. Team emotional intelligence</li> <li>48. Team Longevity</li> <li>49. Team-based learning tools</li> <li>50. Team-building dynamics</li> <li>51. Technical and technological support</li> <li>52. Time, need for closure</li> <li>53. Training programmes</li> <li>54. Transactional/Transformational leadership</li> <li>55. Trust</li> <li>56. Variables in Amabile's KEYS model (organizational and supervisory encouragement, work group support, resources)</li> <li>57. Variables in Ekvall's model (challenge, freedom, idea support, trust/openness...)</li> <li>58. Variables in West's team climate for innovation model (vision, participative safety, task orientation, support for innovation)</li> </ul>
38	Curral, L. A., Forrester, R. H., Dawson, J. F., & West, M. A. (2001).	It's what you do and the way that you do it: Team task, team size, and innovation-related group processes	European Journal of Work & Organizational Psychology	Interviews/Questionnaire. This paper describes a study of the relationships between team inputs (task type and team size) and team processes in 87 cross industry Portuguese teams	The results suggested that large teams operating under a relatively high pressure to innovate have poorer team processes than large teams that do not have a high requirement to innovate.	<ul style="list-style-type: none"> <li>1. Size and type of team</li> <li>2. Group process (Team climate inventory TCI)</li> </ul>
39	Curseu, P. L. (2010).	Team Creativity in Web Site Design: An Empirical Test of a Systemic Model.	Creativity Research Journal	A cross sectional study of 60 student teams	An input-process-output model was used as a theoretical background and it was predicted that team diversity has an indirect impact on team creativity, mediated by planning=organizing and	<ul style="list-style-type: none"> <li>1. Planning and organizing</li> <li>2. Relationship Conflict</li> <li>3. Task conflict</li> <li>4. Team disparity</li> <li>5. Team variety</li> </ul>

					intrateam conflict, as well as a direct impact, with team variety being beneficial for team creativity, and team disparity being detrimental for team creativity. The results support the overall path model and show that the impact of team diversity on team creativity in Web site design is mediated by the team processes and intrateam conflict.	
40	Dong, Y., Bartol, K. M., Zhang, Z. X., & Li, C. (2017).	Enhancing employee creativity via individual skill development and team knowledge sharing: Influences of dual-focused transformational leadership.	Journal of organizational behavior	Quantitative/Surveys	Addressing the challenges faced by team leaders in fostering both individual and team creativity, this research developed and tested a multilevel model connecting dual-focused transformational leadership (TFL) and creativity and incorporating intervening mechanisms at the two levels. Using multilevel, multisource survey data from individual members, team leaders, and direct supervisors in high-technology firms, we found that individual-focused TFL had a positive indirect effect on individual creativity via individual skill development, whereas team-focused TFL impacted team creativity partially through its influence on team knowledge sharing. We also found that knowledge sharing constituted a cross-level contextual factor that moderated the relationship among individual-focused TFL, skill development, and individual creativity.	<ol style="list-style-type: none"> <li>1. Dual-focused transformational leadership</li> <li>2. Individual skill development</li> <li>3. Individual creativity</li> <li>4. Team knowledge sharing</li> </ol>
41	Eisenbeiss, S. A., Van Knippenberg, D., & Boerner, S. (2008).	Transformational leadership and team innovation: integrating team climate principles.	Journal of applied psychology	Quantitative/Surveys	Fostering team innovation is increasingly an important leadership function. However, the empirical evidence for the role of transformational leadership in engendering team innovation is scarce and mixed. To address this issue, the authors link transformational leadership theory to principles of M. A. West's (1990) team climate theory and	<ol style="list-style-type: none"> <li>1. Transformational leadership</li> <li>2. Support for innovation</li> <li>3. Climate for excellence</li> </ol>



					propose an integrated model for the relationship between transformational leadership and team innovation. This model involves support for innovation as a mediating process and climate for excellence as a moderator. Results from a study of 33 research and development teams confirmed that transformational leadership works through support for innovation, which in turn interacts with climate for excellence such that support for innovation enhances team innovation only when climate for excellence is high.	
42	Fagan, M. H. (2004).	THE INFLUENCE OF CREATIVE STYLE AND CLIMATE ON SOFTWARE DEVELOPMENT TEAM CREATIVITY: AN EXPLORATORY STUDY.	Journal of Computer Information Systems	Quantitative/Surveys. 60 IT software development team members at a large east coast chemical manufacturer.	The study found 1) a positive relationships between creative style and work creativity, 2) a positive relationship between creative climate stimulants and work creativity, 3) a negative relationship between creative climate obstacles and work creativity, 4) no relationship between creative style and climate, and 5) that creative climate stimulants were significant determinants of work creativity. However, the hypothesis that creative style would predict work creativity was not supported.	1. Creative Climate Obstacles 2. Creative climate stimulants 3. Creative styles
43	Fairchild, J., & Hunter, S. T. (2013).	We've got creative differences': The effects of task conflict and participative safety on team creative performance.	Journal of Creative Behavior	Surveys and Qualitative coding (55 design teams)	Results suggest that both participative safety and task conflict must exist in tandem to spur team creativity, and that team creative performance must be examined at the facet level, instead of simply as a single construct. In addition, supplemental analyses suggest that teams low on participative safety and task conflict are likely able to generate more original solutions for creative tasks due to the presence of an independent, disagreeable creative member.	1. Team conflict 2. Participative safety 3. Agreeableness 4. Task interdependence
44	Fan, H.-L., Chang, P.-F.,	Multilevel influences of transactive memory	Thinking Skills and Creativity	Quantitative/Surveys. Survey data from 475	Findings suggest a multilevel mediation model in which creative	1. Creative self-efficacy 2. Innovative behavior

	Albanese, D., Wu, J.-J., Yu, M.-J., & Chuang, H.-J. (2016).	systems on individual innovative behavior and team innovation.		individuals in 86 teams participating in two iterations of the Intelligent Ironman Creativity Contest in Taiwan.	self-efficacy partially mediates the relationship between TMSs and the individual's innovative behavior. At the team level, the TMS positively affects team innovation.	3. Transactive memory system
45	Farh, J.-L., Lee, C., & Farh, C. I. C. (2010).	Task conflict and team creativity: A question of how much and when.	Journal of Applied Psychology	Quantitative. A study of 71 information technology project teams in the greater China region.	Task conflict may expose team members to new ideas and present the potential to produce creative outcomes.	1. Phase of project team life cycle 2. Team conflict (Task conflict)
46	Fong, P. S. W., Men, C., Luo, J., & Jia, R. (2018).	Knowledge hiding and team creativity: The contingent role of task interdependence.	Management Decision	Quantitative/Surveys. A sample of 87 knowledge worker teams involving 393 employees and employers in China.	The authors tested the hypotheses with a sample of 87 knowledge worker teams involving 393 employees and employers in China.  Findings: Knowledge hiding is negatively related to team creativity, fully mediated by absorptive capacity. In addition, the negative relationship between knowledge hiding and absorptive capacity would be weakened by task interdependence	1. Knowledge hiding 2. Absorptive capacity 3. Task interdependence
47	Gedik, Y., & Ozbek, M. F. (2020).	How cultural tightness relates to creativity in work teams: Exploring the moderating and mediating mechanisms.	Creativity and Innovation Management	Quantitative/Surveys	In this study, we show under which circumstances and why cultural tightness conduces to suboptimal creativity outcomes in organizational work settings. We conclude that tighter cultures, through lower levels of team justice climate, can be detrimental for the creativity of work teams. However, this is more likely to be the case when teams are characterized by lower levels of collectivism. One clear practical implication for organizations striving to encourage team creativity would thus be to match their external normative contexts to their members' internal values. Indeed, organizations and team supervisors in particular are strongly recommended to take into account members' within-individual factors (i.e., internal values) when external constraints and their strict enforcement via negative sanctioning	1. Cultural tightness 2. Team collectivism 3. Team justice climate

					<p>are salient in their work teams. On the basis of the findings of this research, in work teams with tight cultures, supervisors may consider enhancing team-level collectivism by emphasizing common goals and strong interdependence among team members, by supporting socialization practices that promote a team-oriented mindset and by rewarding collectivistic behaviour (Chatman &amp; Cha, 2003; Schaubroeck, Lam, &amp; Cha, 2007). Moreover, because our findings offer a debilitating effect of tight cultures on all sub-dimensions of justice (distributive, procedural and interactional) for teams scoring lower on collectivism, organizations should be able to act upon and compensate for this loss because perceptions of unfairness do jeopardize not only team creativity but also other critically important team outcomes such as team performance, team presenteeism (Colquitt et al., 2002) and members' satisfaction with the team leader (Phillips, 2002).</p>	
48	Ghosh, V., & Tripathi, N. (2020).	Perceived inclusion and team creativity climate: examining the role of learning climate and task interdependency.	Management Research Review	Quantitative/Surveys	<p>This paper aims to investigate the relationship between perceived inclusion (individual and group-level) and team creativity climate (TCC) and explore the role of team learning climate (TLC) and task interdependency in the above relationship. Data were collected using questionnaires from 24 Indian organizations. The respondents were junior and middle-level employees (N= 303) working in small teams (n = 73). The cut-off criteria for sample team selection were at least three team members within a team had responded</p>	<ol style="list-style-type: none"> <li>1. Perceived inclusion</li> <li>2. Team learning climate</li> <li>3. Task interdependency</li> </ol>

					<p>and at least 60% within-group response rate was achieved.</p> <p>Perceived inclusion (PI) of employees had a positive influence on TCC via TLC. However, the negative effect of team-level differences in perceived inclusion (TPID) was also mediated by the learning climate. Task interdependency moderated the PI-TLC relationship in such a way that in a high task interdependency situation, the negative effect of TPID on learning climate is reduced, while in a low task interdependency situation, the negative effect is enhanced.</p> <p>The current research has contributed to the limited literature on PI and team creativity. This paper has uniquely investigated TLC as an intervening variable in the PI-TCC relationship. The paper has encapsulated the theoretical and practical underpinnings of inclusion beliefs in the modern organizational context.</p>	
49	Gino, F., Argote, L., Miron-Spektor, E., & Todorova, G. (2010).	First, get your feet wet: The effects of learning from direct and indirect experience on team creativity.	<i>Organizational Behavior and Human Decision Processes</i>	Experimental study	<p>The findings demonstrate that transactive memory systems fully mediate the effect of direct task experience on team creativity. Teams who acquired task experience directly are more creative because they develop better transactive memory systems than teams who acquired experience vicariously.</p>	<p>Prior experience</p> <ol style="list-style-type: none"> <li>1. Direct task experience</li> <li>2. Indirect task experience</li> </ol>
50	Gonçalves, L. and Brandão, F. (2017).	The relation between leader's humility and team creativity: The mediating effect of psychological safety and psychological capital	<i>International Journal of Organizational Analysis</i>	Quantitative, The sample includes 73 teams and their leaders, from 40 firms operating in different industries. Leaders ( $n = 73$ ) described their own humility and team creativity. Team members ( $n = 341$ ) described the leader's humility, and the team's	<p>Structural equation modelling (LISREL; maximum likelihood estimation) was used to test the hypothesized model. The findings are represented in Figure 1 (control variables not shown), and the results suggest that the leader's humility predicts team creativity through team's psychological safety (PsySafe) and psychological capital (PsyCap).</p>	<ol style="list-style-type: none"> <li>1. Psychological safety</li> <li>2. psychological capital</li> <li>3. Leader humility</li> </ol>

				psychological safety and psychological capital.		
51	Gong, Y., Kim, T.-Y., Lee, D.-R., & Zhu, J. (2013).	A multilevel model of team goal orientation, information exchange, and creativity.	Academy of Management Journal	Quantitative/Surveys. They collected data from 100 R&D teams in 19 Korean companies involved in the telecommunication, electronics, chemical, aerospace, information technology, and pharmaceutical industries. Of the 564 member-leader pair surveys distributed, 485 complete surveys were returned, giving a response rate of 86 percent.	The results indicated that a team learning goal and team performance approach goal were positively related—whereas a team performance avoidance goal was negatively related—to both team creativity and individual creativity through team information exchange. They also found that average individual creativity within a team was positively related to team creativity (going above and beyond the effect of team information exchange) through a supportive climate for creativity.	<ol style="list-style-type: none"> <li>1. Team Goal Orientation</li> <li>2. Team Information Exchange</li> <li>3. Trust relationship with the team leader</li> <li>4. Supportive climate for creativity</li> <li>5. Individual creativity</li> </ol>
52	Gu, J., Chen, Z., Huang, Q., Liu, H., & Huang, S. (2018).	A multilevel analysis of the relationship between shared leadership and creativity in inter-organizational teams.	Journal of Creative Behavior	Quantitative/Surveys. Multisource data were collected from 53 inter-organizational teams.	They obtain the following findings: first, shared leadership is positively related to both team creativity and individual creativity via knowledge sharing. Second, task interdependence positively moderates the relationship between shared leadership and knowledge sharing. Third, task interdependence positively moderates the relationship between knowledge sharing and team creativity but does not moderate the relationship between knowledge sharing and individual creativity.	<ol style="list-style-type: none"> <li>1. Shared leadership</li> <li>2. Knowledge sharing</li> <li>3. Task interdependence</li> </ol>
53	Gu, Q., Liang, B., & Cooke, F. L. (2020).	How does shared leadership affect creativity in teams? A multilevel motivational investigation in the Chinese context.	The International Journal of Human Resource Management	Quantitative/Surveys	The proposed model has been tested using two independent samples (Study 1 with 73 employees and Study 2 with 501 employees from 84 teams) in the Chinese context. Results from Study 1 provide preliminary support for the influence of perceived shared leadership on creativity at the individual level, whereas results from Study 2 support the proposed multilevel motivational mechanism between shared leadership and creativity at both team and individual levels. Findings offer theoretical	<ol style="list-style-type: none"> <li>1. Perceived shared leadership</li> <li>2. Individual competence</li> <li>3. Individual creativity</li> <li>4. Shared leadership</li> <li>5. Team potency</li> </ol>

					implications for shared leadership and creativity research and provide managerial implications, especially for paternalistic societies like China, in which respect for social hierarchy remains a prevalent cultural norm.	
54	Pei, G. (2017).	Structuring leadership and team creativity: The mediating role of team innovation climate.	Social Behavior & Personality: an international journal	Quantitative/Surveys (54 teams in Chinese high-tech enterprises)	Results indicated that structuring leadership was positively related to both team innovation climate and team creativity. In addition, the results supported the role of team innovation climate as a mediator in the relationship between structuring leadership and team creativity.	1. Structuring leadership 2. Team climate for innovation
55	Guo, W., Gan, C., & Wang, D. (2020).	The mobility of team members and team creativity: exploring the mediating role of team cognition.	Journal of Organizational Change Management	Quantitative/Surveys	<p>The results show that frequent team member mobility is negatively related to a knowledge-worker team's creativity, and the relationship is mediated by team TMS and creative efficacy</p> <ul style="list-style-type: none"> <li>The possible distinct effects of different forms of team membership change required further investigation.</li> <li>we paid little attention to the characteristic of members who joined or left the team.</li> <li>The present study did not infer a causal relationship between team member mobility and team creativity</li> </ul>	1. Team member mobility 2. Team TMS 3. Team creative efficacy
56	Guo, W., & Wang, D. (2017).	Does joint decision making foster team creativity? Exploring the moderating and mediating effects.	Personnel Review	Quantitative/Surveys	The hypothesized mediated moderation model is supported. The results indicate that joint decision making is more positively related to team creativity under lower levels of team membership change and team psychological safety is a significant intermediate mechanism between the moderating effect and team creativity.	1. Joint decision making 2. Team membership change 3. Team psychological safety
57	Gupta, R., & Banerjee, P. (2016).	Antecedents of organisational creativity: a multi-level approach.	Business: Theory and Practice	Literature review/Conceptual paper	The purpose of this literature review is to provide a better understanding of the antecedents of organisational creativity with a multi-level approach. Organisational creativity is a sum total	INDIVIDUAL LEVEL ANTECEDENTS OF CREATIVE OUTPUT – Personality – Domain specific knowledge

					<p>of the creativity accounted for by the individual employees of the organisation, the cumulative creativity of a team or group and creativity arising out of different structural components of an organisation. Some of the antecedents identified from the literature include personality, intrinsic motivation, group cohesion, social inhibition, cognitive interference, leader member exchange, organisational culture and climate, amongst others at individual, group and organisational level. Based on the literature review, suggestions for future research and research propositions have been proposed.</p>	<ul style="list-style-type: none"> <li>- Positive affect</li> <li>- Intrinsic motivation</li> <li>- Self-construal</li> <li>- National culture values</li> <li>- Manager's creative personality</li> <li>- Self leadership</li> </ul> <p>ORGANISATIONAL LEVEL ANTECEDENTS OF CREATIVE OUTPUT</p> <ul style="list-style-type: none"> <li>- Supervisor support</li> <li>- Leader-member exchange</li> <li>- Employee motivators and rewards</li> <li>- Organisational culture</li> <li>- Organisational climate</li> <li>- Organisational policies</li> <li>- Creativity training &amp; time pressure</li> </ul> <p>GROUP LEVEL ANTECEDENTS OF CREATIVE OUTPUT</p> <ul style="list-style-type: none"> <li>- Group cohesion</li> <li>- Social inhibition</li> <li>- Glue role</li> <li>- Group conflict</li> <li>- Group diversity</li> <li>- Dominance</li> </ul>
58	Han, J., Han, J., & Brass, D. J. (2014).	Human capital diversity in the creation of social capital for team creativity.	Journal of organizational behavior	Longitudinal design	<p>We highlight the social aspects of team creativity by proposing that team creativity is influenced by two types of team social capital: bridging and bonding social capital. Going beyond the structural perspective, we posit that team-level human capital diversity is one of the potential antecedents of social capital for team creativity. We suggest that network structures are formed by teammates' interactions, which are largely the result of differences in their individual characteristics. The results of an empirical study using 36 teams of</p>	<ol style="list-style-type: none"> <li>1. Knowledge variety</li> <li>2. Knowledge disparity</li> <li>3. Knowledge separation</li> <li>4. Team bonding</li> <li>5. Team bridging</li> <li>6. Team size</li> <li>7. National diversity</li> </ol>

					MBA students showed that the interaction of team-bridging social capital with team-bonding social capital was positively and significantly related to team creativity. Knowledge variety and knowledge disparity had a joint effect on team-bridging social capital, and knowledge separation was negatively related to team-bonding social capital. Moreover, team social capital mediated the effects of knowledge diversity on team creativity.	
59	Han, S. J., Lee, Y., & Beyerlein, M. (2019).	Developing Team Creativity: The Influence of Psychological Safety and Relation-Oriented Shared Leadership.	Performance Improvement Quarterly	Quantitative/Surveys. A survey of 260 graduate and undergraduate students working in project teams at a large Southwestern university.	This study examines the effects of a psychosocially safe environment and two types of shared leadership on project team creativity. We focused on specific dimensions of shared leadership to examine their association with creative outcomes. To measure the dimensions, we conducted a survey of 260 graduate and undergraduate students working in project teams at a large Southwestern university. We found that a psychologically safe environment enabled team members to perform task-oriented and relation-oriented tasks. However, only relation-oriented shared leadership positively influenced team creativity	<ol style="list-style-type: none"> <li>1. Team psychological safety</li> <li>2. Shared leadership</li> </ol>
60	He, W., Hao, P., Huang, X., Long, L. R., Hiller, N. J., & Li, S. L. (2020).	Different roles of shared and vertical leadership in promoting team creativity: Cultivating and synthesizing team members' individual creativity.	Personnel Psychology	Experiment and Time-lagged field	Individual-focused transformational leadership strengthened the positive effect of shared leadership on team members' average individual creativity, whereas group-focused transformational leadership facilitated the translation of teams with high average individual creativity into teams with high levels of team creativity	<ol style="list-style-type: none"> <li>1. Shared leadership</li> <li>2. Creative self-efficacy</li> <li>3. Individual creativity</li> </ol>
61	Hoever, I. J., van Knippenberg, D., van Ginkel, W.	Fostering team creativity: Perspective taking as key to	Journal of Applied Psychology	Experimental Design Task	They examined the relationship between diversity in perspectives and knowledge on team creativity outcomes as moderated by the effect of	<ol style="list-style-type: none"> <li>1. Diversity of perspectives</li> <li>2. Information elaboration</li> <li>3. Information sharing</li> <li>4. Perspective taking</li> </ol>



	P., & Barkema, H. G. (2012).	unlocking diversity's potential.			perspective taking. The results of this lab experiment demonstrate that diversity in perspectives and knowledge, and perspective taking did not have significant associations with team creativity. However, more diverse teams generated more creative ideas when perspective taking was high because perspective taking enabled the teams to elaborate and integrate each other's ideas and inputs.	5. Task conflict
62	Hoever, I. J., Zhou, J., & van Knippenberg, D. (2018).	Different strokes for different teams: The contingent effects of positive and negative feedback on the creativity of informationally homogeneous and diverse teams.	Academy of Management Journal	Experimental study	Feedback is a ubiquitous management tool. Employing it to enhance team creativity raises an important question of whether positive or negative feedback is more effective. Unfortunately, prior research on feedback valence and creativity is limited to the individual level, neglecting team creativity's interdependent and knowledge-intensive nature. We address this issue and advance the team-information-processing perspective on team creativity by integrating two heretofore separate research streams to develop a team-specific model about how negative and positive feedback enhance creativity via two alternative information processing routes, contingent on teams' informational diversity. Negative feedback fuels teams' systematic effort and attention to external, novel information. In informationally diverse teams, in which members hold different information and perspectives, these efforts promote team creativity through information elaboration. Conversely, positive feedback propels members to flexibly use their information and contribute the resultant divergent insights to the team. In informationally homogeneous teams, wherein these	1. Information elaboration

					insights relate to others' information and perspectives, these divergent insights trigger teams' generative processing and in turn creativity. Results from a team experiment support the predicted feedback valence by informational diversity interaction on team creativity through elaboration and generative processing.	
63	Homan, A. C., Buengeler, C., Eckhoff, R. A., van Ginkel, W. P., & Voelpel, S. C. (2015)	The interplay of diversity training and diversity beliefs on team creativity in nationality diverse teams.	Journal of Applied Psychology	Experimental task	They propose that diversity training can increase team creativity, but only for teams with less positive pretraining diversity beliefs (i.e., teams with a greater need for such training) and that are sufficiently diverse in nationality. Comparing the creativity of teams that attended nationality diversity training versus control training, they found that for teams with less positive diversity beliefs, diversity training increased creative performance when the team's nationality diversity was high, but undermined creativity when the team's nationality diversity was low. Diversity training had less impact on teams with more positive diversity beliefs, and training effects were not contingent upon these teams' diversity. Speaking to the underlying process, they showed that these interactive effects were driven by the experienced team efficacy of the team members. We discuss theoretical and practical implications for nationality diversity management.	<ol style="list-style-type: none"> <li>1. Training condition</li> <li>2. Team diversity beliefs</li> <li>3. Nationality diversity</li> <li>4. Team efficacy</li> </ol>
64	Hon, A. H., & Chan, W. W. (2012).	Team creative performance: The roles of empowering leadership, creative-related motivation, and task interdependence.	Cornell Hospitality Quarterly	Quantitative. They collected data from 286 team members, which included 52 team leaders.	The results from survey data from managers and workers in mainland China reveal that empowering leadership positively influenced team creativity via team self-concordance and team creative efficacy. In addition, the moderation-mediation path analysis indicated that team task interdependence strengthened the	<ol style="list-style-type: none"> <li>1. Empowering leadership</li> <li>2. Team creative efficacy</li> <li>3. Team self-concordance</li> <li>4. Team task interdependence</li> </ol>

					direct effects of empowering leadership on team self-concordance and team creative efficacy, as well as its indirect effect on team creativity. Empowering leadership includes leading by example, coaching, participative decision making, informing, and showing concern. By implication, managers should identify tasks that require teamwork (such as guest service) and then make every effort to empower employees and improve their task interdependence.	
65	Hu, J., Erdogan, B., Jiang, K., Bauer, T. N., & Liu, S. (2018)	Leader humility and team creativity: The role of team information sharing, psychological safety, and power distance.	Journal of Applied Psychology	Quantitative/Surveys. 72 work teams and 354 individual members from 11 information and technology firms in China.	They found that the positive relationship between leader humility and team information sharing was significant and positive only within teams with a low power distance value. In addition, leader humility was negatively related to team psychological safety in teams with a high-power distance value, whereas the relationship was positive yet nonsignificant in teams with low power distance. Furthermore, team information sharing and psychological safety were both significantly related to team creativity.	1. Leader humility 2. Team Information Sharing and Psychological Safety 3. Team Power Distance Value
66	Hu, N., Chen, Z., Gu, J., Huang, S., & Liu, H. (2017).	Conflict and creativity in inter-organizational teams.	International Journal of Conflict Management	Quantitative/Surveys 54 teams, which comprised 54 team managers and 276 team members.	– A questionnaire survey was conducted in China to collect data. Consequently, 54 teams, which comprised 54 team managers and 276 team members, were deemed useful for the study.  Findings – By testing our hypotheses on 54 inter-organizational teams, we found that relationship conflict has a negative relationship with team creativity, whereas task conflict has an inverted U-shaped (curvilinear) relationship with team creativity. Furthermore, when shared leadership is stronger, the negative relationship with	1. Relationship conflict 2. Task conflict 3. Shared leadership

					team creativity is weaker for relationship conflict, whereas the inverted U-shaped relationship with team creativity is stronger for task conflict.	
67	Huang, C., He, C., & Zhai, X. (2020).	The approach of hierarchical linear model to exploring individual and team creativity: A perspective of cultural intelligence and team trust.	Mathematical Problems in Engineering	Quantitative/Surveys	From the perspective of leadership, this study explores the influence of shared leadership on creativity in interorganizational teams. Specifically, this study integrates leadership perspective with trust perspective and explores the mediating role of team trust between shared leadership and creativity at both team and individual level. In addition, this study examines the moderating effect of the leader's cultural intelligence between shared leadership and team trust based on the perspective of leadership situation. The data comes from 275 employees within 54 interorganizational teams. The results show that shared leadership will promote team trust and team trust plays a key mediating role between shared leadership and creativity. Moreover, the relationship between shared leadership and team trust is moderated by the cultural intelligence of leader, such that the positive relationship will be stronger with high cultural intelligence and weaker with low cultural intelligence.	<ol style="list-style-type: none"> <li>1. Shared leadership</li> <li>2. Team trust</li> <li>3. Cultural intelligence</li> <li>4. Individual creativity.</li> </ol>
68	Huang, C.-Y., & Liu, Y.-C. (2021).	Influence of need for cognition and psychological safety climate on information elaboration and team creativity.	<i>European Journal of Work and Organizational Psychology</i>	Quantitative/Surveys	In this study, we have adopted the MIP-G model to test, at the group level, the effects that both teams' need for cognition (as a proxy for epistemic motivation) and psychological safety climate (as a proxy for social motivation) have on group discussion processes and team creativity. As suggested by the MIP-G model, the need for cognition can help strengthen the epistemic motivation in teams just as psychological safety climate can	<ol style="list-style-type: none"> <li>1. Team psychological safety</li> <li>2. Need for cognition</li> <li>3. Team information elaboration</li> </ol>

					strengthen the social motivation in teams. When the social and epistemic motivation of team members is strong, they have better information processing, which leads to better team creativity. While we found support for the positive effect of need for cognition and psychological safety climate on teams' decision-making processes and creativity, our results did not provide support for the assertion that interaction effects exist between the two, in contrast to what the MIP-G model suggests. According to our findings, improvements in psychological safety climate do not result in improved outcomes for teams that already have an optimal level of need for cognition. Practitioners can attempt to improve team creativity by either stimulating team members' need for cognition or creating a psychologically safe environment.	
69	Hülshager, U. R., Anderson, N., & Salgado, J. F. (2009)	Team-level predictors of innovation at work: A comprehensive meta-analysis spanning three decades of research.	Journal of Applied Psychology	Quantitative Meta-analysis of team-level antecedents of creativity and innovation in the workplace 104 independent studies.	Input-Process-Output of 15 variables were presented. Input: Team Composition & Structure (Ranked by most important variables): 1. Goal Interdependence 2. Team Size 3. Job Relevant Diversity 4. Task Interdependence 5. Team Longevity 6. Background Diversity. Process (Ranked by most important variables): 1. Vision 2. External Communication 3. Support for innovation 4. Task Orientation 5. Internal Communication 6. Cohesion 7. Participative Safety 8. Task Conflict 9. Relationship Conflict. Output: Creativity and Innovation	1. Goal Interdependence 2. Team Size 3. Job Relevant Diversity 4. Task Interdependence 5. Team Longevity 6. Background Diversity. 7. Vision 8. External Communication 9. Support for innovation 10. Task Orientation 11. Internal Communication 12. Cohesion 13. Participative Safety 14. Task Conflict 15. Relationship Conflict.
70	Jain, R., Jain, C., & Jain, P. (2015).	Team Creativity at Work: A Conceptual Framework.	South Asian Journal of Management	Literature review/Proposed the model	Based on the outcomes of comprehensive review and consequently emerged propositions 'a theoretical framework of team creativity' is presented. In such a framework, it is suggested that the	1. Empowering Leadership and Transformational Leadership 2. Enhanced Level of Organizational Performance 3. Individual creativity 4. Perspective taking

					seven key factors, viz., creativity of individual team members, team composition and team diversity, team cohesion, team structure, team reflexivity, perspective taking, and empowering and transformational leadership influence team creativity. The review revealed a number of propositions which may be taken up to test in future research in the field of creativity in team context.	5. Team cohesion 6. Team Composition and Diversity of Team Members 7. Team reflexivity 8. Team structure
71	Jia, L., Shaw, J. D., Tsui, A. S., & Park, T. Y. (2014).	A social–structural perspective on employee–organization relationships and team creativity.	Academy of Management Journal	Quantitative. They find support for the model in a two-wave study of 1,807 employees in 229 teams in 55 Chinese high-technology organizations.	They develop a social-structural perspective on the relationship between employee-organization relationships (EORs) and team creativity. They argue that the mutual investment EOR approach, in which employers expect high levels of employee contributions and offer extensive inducements, will be associated with higher team creativity relative to other EOR approaches. They also advance the argument that this relationship will be mediated by team member work-related communication density and that the mediated relationship will be stronger when team members' tasks are complex.	1. Work-related communication density 2. Task complexity
72	Joo, B.-K., Song, J. H., Lim, D. H., & Yoon, S. W. (2012).	Team creativity: the effects of perceived learning culture, developmental feedback and team cohesion.	International Journal of Training & Development	Using a convenience sampling approach (Creswell, 2008), a web-based questionnaire was distributed to 500 employees from six Korean companies with headquarters in Korea. We obtained 228 responses after the listwise deletion process, and the final response rate was 46 per cent.	The results showed that the demographic variables, the three antecedents and their interactions explained 41 per cent of variance in team creativity. Team creativity was positively correlated with a higher level of learning culture, developmental feedback and team cohesion. In addition to the main effects, two interaction effects (developmental feedback and team cohesion; learning culture and team cohesion) were significant.	1. Developmental feedback 2. Perceived learning culture 3. Team cohesion
73	Khan, M. K., Shafi, M., Khan,	Why does task conflict influence team	International Journal of Research in	Quantitative/Surveys	<i>Although task conflict is usually seen to be beneficial to team creativity, the</i>	1. Task conflict 2. Team Reflexivity

	S., & Khan, W. (2020).	creativity? The role of team reflexivity.	Business and Social Science		<i>relationship is still unclear because of the mixed results. This research investigated why task conflicts resulted in some positive outcomes in terms of team creativity. Drawing on minority dissent theory, this study examined the conflict-creativity relationship by focusing on the mediating role of team reflexivity. We collected the sample data from 338 employees and 67 supervisors (67 teams) across three different sectors (banking, pharmaceuticals, and insurance) in Pakistan to support our hypotheses. We used bootstrapping analysis and the Sobel test to check for the mediation analysis. The results indicated that task conflict increases team reflexivity, team reflexivity facilitated team creativity, and thus, task conflict positively influenced team creativity via team reflexivity.</i>	
74	Khedhaouria, A., & Ribiere, V. (2013).	The influence of team knowledge sourcing on team creativity.	The Learning Organization	A theoretical model is developed and tested to assess the influence of four main antecedents of team knowledge sourcing and creativity: learning orientation, intellectual demands, risk aversion, and relational capital. The research model is tested using PLSPM.	The findings show the significant influence of all the independent variables, but more particularly the strong influence of learning orientation on team knowledge sourcing and on team creativity.	<ol style="list-style-type: none"> <li>1. Intellectual demands</li> <li>2. Learning orientation</li> <li>3. Relational capital</li> <li>4. Risk aversion</li> <li>5. Team knowledge sourcing</li> </ol>
75	Kim, B. J., Park, S., & Kim, T. H. (2019).	The effect of transformational leadership on team creativity: Sequential mediating effect of employee's psychological safety and creativity.	Asian Journal of Technology Innovation	Quantitative/Survey Survey of 196 employees of 52 teams in South Korea	Many scholars and practitioners have acknowledged the importance of transformation leadership as a critical catalyst of creativity in an organization. But, current research on the association between TL and creativity has some limitations because they have mainly focused on the individual employee's creativity with a single mediator and a single-level analysis. As firms increasingly rely on	<ol style="list-style-type: none"> <li>1. Transformational leadership</li> <li>2. Psychological Safety</li> <li>3. Creativity of Individual Employee</li> </ol>

					<p>'teams' to enhance their innovation, however, we need to take into account factors that affect teamlevel creativity. To address this issue, we attempt to find underlying mechanisms which drive the relation between transformational leadership and team-level creativity. Grounded on a group creativity model, we argue that transformational leadership improves team creativity through employee's psychological safety and subsequently facilitating his or her individual-level creativity. To test the hypotheses, we conducted a multi-level structural equation modeling analysis by utilizing a survey of 196 employees of 52 teams in South Korea. The result shows that our hypotheses are supported</p>	
76	Kim, E. (2021).	A Study On The Convergence Core Competencies Influencing The Team Creativity Of Industrial Workers.	Turkish Journal of Computer and Mathematics Education	Quantitative/Surveys	<p>The purpose of this study is to analyze the effect of core competencies of industrial workers on team creativity in order to establish the direction of core competency education of universities as the 4th industrial revolution era arrives. For this purpose, 104 industrial workers were studied to investigate the impact of convergence core capacity on team creativity. The effect of convergence core competency of industrial workers on team creativity was analyzed. The analysis results show that creative thinking and consideration affect team creativity as well as industrial workers' convergence core capabilities.</p>	<ol style="list-style-type: none"> <li>1. demographic characteristics (Gender, age, career, educational, work scale, job field)</li> <li>2. the current level of the convergence core capability (Creative thinking, critical thinking, converged knowledge, problem solving, communication, cooperation, use of convergence tools, consideration, responsibility)</li> </ol>
77	Kim, J., & Song, C. (2021).	The relationship between R&D team diversity and team creativity.	Management decision	Quantitative/Surveys Survey questionnaires were used to collect data from 24 Korean R&D teams (185 team members, 24 team leaders and 24 managers) in the public and private sectors.	<p>This study aims to explore how and what type of team diversity is related to team creativity in R&amp;D organizations, incorporating conflict as a mediator and transformational leadership as a moderator. This study attempts to explore how and what type of team</p>	<ol style="list-style-type: none"> <li>1. Team diversity</li> <li>2. Team conflict</li> <li>3. Transformational leadership</li> </ol>



					diversity is related to team level creativity in R&D organizations by incorporating within-team conflict as the “black box,” explaining the relationship between team diversity and creativity. Conflict may be an important mediator involved in understanding team processes around team diversity and creativity, with positive and negative elements depending on the type of team diversity (Kurtzberg and Amabile, 2001). Transformational leadership may be perceived as a significant contextual variable that influences the dynamics of team diversity.	
78	Kim, M., & Shin, Y. (2015).	Collective efficacy as a mediator between cooperative group norms and group positive affect and team creativity.	Asia Pacific Journal of Management	Quantitative/Surveys. 97 work teams from 12 different South Korean organizations.	Very few researchers have paid attention to the team-level antecedents and mediating processes of team creativity. To fill this gap, drawing on social cognitive theory and Dzindolet’s group creativity process model, this study examined cooperative group norms and group positive affect as antecedents of team creativity and explored collective efficacy as an intermediary mechanism between these relationships. The current study was conducted with 97 work teams from 12 different South Korean organizations. As predicted, the results demonstrated that cooperative group norms and group positive affect were positively associated with team creativity, and that collective efficacy mediated these relationships.	<ol style="list-style-type: none"> <li>1. Cooperative group norms</li> <li>2. Group positive affect</li> <li>3. Collective efficacy</li> </ol>
79	Kiratli, N., Rozemeijer, F., Hilken, T., de Ruyter, K., & de Jong, A. (2016).	Climate setting in sourcing teams: Developing a measurement scale for team creativity climate.	Journal of Purchasing and Supply Management	Quantitative	This article introduces the concept of a team creativity climate (TCC) - <i>team members' shared perceptions of their joint policies, procedures, and practices with respect to developing creative sourcing strategies</i> – as a means to address the unique challenges associated with a collective, cross-	<ol style="list-style-type: none"> <li>1. Team creativity climate scale</li> </ol>

					functional approach to develop value-enhancing sourcing strategies. Using a systematic scale development process that validates the proposed concept, the authors confirm its ability to predict sourcing team performance, and suggest some research avenues extending from this concept.	
80	Kirrane, M., Kramer, M., & Lassleben, H. (2020).	Beyond the surface: exploring the relationship between value diversity and team creativity.	Creativity Research Journal	Experimental task of 98 teams.	The findings reveal that when considering value diversity in terms of variety, there is a positive association between diversity and team creativity. However, when the separation dimension of value diversity is considered, a negative association between diversity and team creativity is identified.	1. Diversity: Value orientation 2. Team communication
81	Klein, A., & Speckbacher, G. (2019).	Does using accounting data in performance evaluations spoil team creativity? The role of leadership behavior.	The Accounting Review	Mixed methods	Organizations frequently use teams for creative problem-solving. Evaluating the performance of creative teams based on customer-related accounting data, such as client satisfaction measures, revenues, or profits, clarifies which kind of creativity is expected from the team and potentially makes the creative process more effective. However, the use of such accounting data in performance evaluations may amplify the tensions between the artistic merit and the commercial success of creative ideas and thus create conflicts that undermine team creativity. We argue that it depends on the team leader's leadership style whether the negative or positive effects of using customer-related data in performance evaluations on team creativity will prevail. If the team leader shows a leadership style that helps team members internalize the values and standards underlying the employed performance measures, then negative conflict inside the team is avoided and the positive effects of	1. Use of Accounting Data in Performance Evaluation (APE) 2. Transformational-Charismatic Team Leadership (TCHAR)

					using customer-related data in performance evaluations can be realized.	
82	Kratzer, J., Leenders, R. T. A. J., & van Engelen, J. M. L. (2004).	Stimulating the Potential: Creative Performance and Communication in Innovation Teams.	Creativity & Innovation Management	Sample of 44 NPD teams in eleven companies. Questionnaire/Surveys	It is found that both interaction frequency and subgroup-formation of communication have a negative relationship to team creativity.	1. Centralization of Communication 2. Frequency of Communication 3. Sub-group Formation of Communication
83	Kratzer, J., Leenders, R. T. A. J., & van Engelen, J. M. L. (2006).	Team Polarity and Creative Performance in Innovation Teams	Creativity & Innovation Management	Quantitative/Surveys. A sample of 51 research and development teams (R&D teams).	The results show that foremost in the conceptualization phase of R&D efforts polarity positively influences the creative performance of R&D teams, whereas at lower degrees of complexity or in situations later in the development cycle polarity negatively impacts the creative performance of R&D teams.	1. Team Polarity 2. Degree of Product and Process Change 3. Phase of the Innovation Process
84	Kurtzberg, T. R., & Amabile, T. M. (2001).	From Guilford to creative synergy: Opening the black box of team-level creativity.	Creativity Research Journal	Literature review/Conceptual paper	Previous research, from Guilford's founding tradition to more modern research on individual creativity and general group processes, falls short of adequately describing team-level creativity. Although researchers have addressed brainstorming in groups with mixed findings, little is known about how creative minds interact in group processes. In this article, we examine the specific group processes and dynamics that may affect team-level creative production and present a description of the ways in which diversity and different types of conflict in groups may affect the creative process. Finally, we offer suggestions for future research on creativity as a dynamic, team-level process.	
84	Lace, N., Buldakova, N., & Rumbinaitė, G. (2015).	Organizational creativity as a driving force for company's innovative development.	Entrepreneurship and Sustainability Issues	Qualitative/Content analysis and interviews	The article investigates the phenomenon of Creativity – the background of this term, its development and what we understand with creativity in business organizations nowadays. The concept of Creativity, Individual creativity and Organizational creativity are given, as	

					well as provided differences between Individual and Organizational creativity. Specifically, the authors analyze the Organizational creativity, its features and influencing factors. This article provides two-step research: 1) content analysis of scientific literature, extracting factors of organizational creativity and 2) interview of business representatives with subsequent comparative analysis of the obtained results. Triangulation of research was obtained through cross verification from two sources.	
85	Lee, D. S., Lee, K. C., & Seo, Y. W. (2015)	An analysis of shared leadership, diversity, and team creativity in an e-learning environment.	Computers in Human Behavior	Quantitative/Surveys. 40 teams consisting of four to eight members.	The results showed that role diversity directly influences team creativity, with shared leadership and knowledge sharing positively contributing to team creativity. Thus, knowledge sharing had a partially mediating role between shared leadership and team creativity. Apart from our hypotheses, the present results implied that if gender diversity (as a differentiated factor) is not a minority status, knowledge sharing may have a fully mediating effect between gender diversity and team creativity.	<ol style="list-style-type: none"> <li>1. Demographic diversity</li> <li>2. Shared leadership</li> <li>3. Knowledge sharing</li> </ol>
86	Lee, E. K., Avgar, A. C., Park, W. W., & Choi, D. (2019).	The dual effects of task conflict on team creativity.	International Journal of Conflict Management	Quantitative. 325 teams across ten large companies in South Korea.	Results showed that task conflict is directly and positively related to team creativity and is negatively and indirectly related to team creativity via relationship conflict. Furthermore, the study found that team-focused TFL moderates all paths through which task conflict affects team creativity. Specifically, team-focused TFL enhances the positive direct effect of task conflict and alleviates the negative indirect effects of task conflict on team creativity.	<ol style="list-style-type: none"> <li>1. Task conflict</li> <li>2. Relationship conflict</li> <li>3. Team-focused transformational leadership</li> </ol>

87	Lee, H. W., Choi, J. N., & Kim, S. (2018).	Does gender diversity help teams constructively manage status conflict? An evolutionary perspective of status conflict, team psychological safety, and team creativity	Organizational Behavior & Human Decision Processes	Quantitative/Surveys	The findings offer novel practical and theoretical insights into the joint influence of status conflict and gender diversity on team psychological safety and team creativity.	<ol style="list-style-type: none"> <li>1. Status conflict</li> <li>2. Gender diversity</li> <li>3. Team psychological safety</li> </ol>
88	Lee, J., Jung, Y., & Yoon, S. (2019).	Fostering Group Creativity through Design Thinking Projects.	Knowledge Management & E-Learning	Qualitative/Interviews	The purpose of this study was to develop team projects in design thinking, for promotion and examination with the cultivation of group creativity. Research was conducted during the spring of 2017, with sixteen graduate students. Using artifact-based interviews, we analyzed the development of group creativity during the five stages of design thinking: understanding knowledge, empathizing, sharing perspectives, generating ideas, and prototyping. Results showed that analytical thinking was present throughout the overall project, while factors related to group creativity (such as learner orientation, interpersonal understanding, and flexibility) were observed at different rates as the project progressed. Results suggest that such pedagogical strategies as idea checking and training for applicability are necessary in order to foster group creativity.	
89	Lee, S. T., & Park, G. (2020).	Does diversity in team members' agreeableness benefit creative teams?.	Journal of Research in Personality	Experimental study	Our findings underscore both the theoretical and practical importance of considering diversity in team members' agreeableness for creative teams. Consistent with the compatibility perspective of team diversity, our findings suggest that grouping members with differing levels of agreeableness is deleterious for both team creativity and team member satisfaction due to increased	<ol style="list-style-type: none"> <li>1. Team member agreeableness</li> <li>2. Diversity in agreeableness</li> <li>3. Team task conflict</li> <li>4. Team relationship conflict</li> </ol>

					task and relationship conflict it potentially rouses. By illuminating task and relationship conflict as key underpinning	
90	Lee, Y., & Yoo, S. (2020).	Individual profiles and team classes of the climate for creativity: A multilevel latent profile analysis.	Creativity and Innovation Management		<p>This paper is about individual's profiles analysis.</p> <p>A multilevel latent profile analysis (MLPA) has been employed increasingly in recent research to analyze data with a nested structure. For example, focusing on person-centered research on climate, Van Eck, Johnson, Bettencourt, and Johnson (2017) identified three student profiles and two school classes based on the school climate for chronic absences using MLPA. The two school classes, marginal climate and challenging climate, were identified based on the distribution of three student profiles. In the organizational literature, Mäkikangas et al. (2018) provided an example of MLPA with perceptions of job characteristics. In particular, two level-2 classes were identified based on the relative frequency of level-1 profiles. Diefendorff, Gabriel, Nolan, and Yang (2019) also employed MLPA to identify eight distinct multilevel latent profiles for emotional labor. They further linked these profiles to wellbeing outcomes at the event level.</p>	<ol style="list-style-type: none"> <li>1. KEYS</li> <li>2. Individual profiles</li> </ol>
91	Leenders, R. T. A., Van Engelen, J. M., & Kratzer, J. (2003).	Virtuality, communication, and new product team creativity: a social network perspective.	Journal of Engineering and technology management	Quantitative/Surveys	<p>In the empirical part of this study, we find that team creativity requires a moderate frequency of communication and a low level of communication centralization. Building on these results, in the second part of this paper, we present a three-factor model (member proximity, communication modality, team task structure) that addresses how creativity can be managed through the effective</p>	<ol style="list-style-type: none"> <li>1. Frequency of communication</li> <li>2. Centralization of communication</li> </ol>

					design and management of virtuality in NPD teams.	
92	Leroy, H., Buengeler, C., Veestraeten, M., Shemla, M., & Hoever, I. J. (2021).	Fostering team creativity through team-focused inclusion: The role of leader harvesting the benefits of diversity and cultivating value-in-diversity beliefs.	Group & Organization Management	Scale development	<p>This article advances prior theory on inclusive leadership to better understand how leaders foster team creativity through members' experience that their uniqueness belongs within the team (i.e., team-derived inclusion). We argue that leaders can instigate such sense of inclusion in their team by engaging in two behaviors: stimulating all members of the team to fully express their unique viewpoints and perspectives (harvesting the benefits of diversity) and facilitating beliefs about the value of differences in the team (cultivating value-in-diversity beliefs). In Study 1 (n = 491 employees), we validated newly developed scales measuring these two leader behaviors. Using a sample of 38 teams within one organization (Study 2), we showed that harvesting the benefits of diversity, without also cultivating value-in-diversity beliefs, has a negative effect on team-derived inclusion and indirectly team creativity. In Study 3, we demonstrated based on 93 teams from multiple organizations, while ruling out several alternative explanations, that harvesting the benefits of diversity positively relates to team-derived inclusion and indirectly team creativity, if leaders also cultivated value-in-diversity beliefs. Our model and findings across studies are the first to shed light on inclusive leadership as double-edged sword in that leaders may need to complement harvesting with cultivating to prevent negative effects and elicit positive effects on inclusion and, eventually, team creativity.</p>	

93	Leung, K., & Wang, J. (2015).	Social processes and team creativity in multicultural teams: A socio-technical framework	Journal of Organizational Behavior	Literature review/Conceptual paper	Drawing on the socio-technical systems perspective, we identify two types of contextual variables that moderate the negative, mediated impact of cultural diversity on team creativity: information and communication technology and task environment in terms of task characteristics. We provide an analysis of how each type of variables moderates the negative impact of cultural diversity on social processes and the impact of social processes on knowledge sharing and integration.	<ol style="list-style-type: none"> <li>1. Cultural diversity</li> <li>2. Task characteristics: <ol style="list-style-type: none"> <li>2.1 Task interdependence</li> <li>2.2 Task complexity</li> <li>2.3 Task intellectiveness</li> </ol> </li> <li>3. Communication realism based on information and communication technology</li> <li>4. Cultural identity obstacles</li> <li>5. Intercultural obstacles</li> </ol>
94	Li, C. R., Li, C. X., & Lin, C. J. (2018).	How and when team regulatory focus influences team innovation and member creativity	Personnel Review	Quantitative. Data from 377 members and their leaders within 56 R&D teams in two Taiwanese companies.	The authors collected data from 377 members and their leaders within 56 R&D teams in two Taiwanese companies. Findings – A team promotion focus was positively related, whereas a team prevention focus was negatively related, to both team innovation and member creativity through team perspective taking and employee information elaboration, respectively. Furthermore, team bureaucracy played a moderating role that suppressed the indirect relationship between team regulatory focus and creativity.	<ol style="list-style-type: none"> <li>1. Individual creativity</li> <li>2. Employee information elaboration</li> <li>3. Team perspective taking</li> <li>4. Team regulatory focus.</li> <li>5. Team centralization context</li> <li>6. Team formalization context</li> </ol>
95	Li, G., Liu, H., & Luo, Y. (2018).	Directive versus participative leadership: Dispositional antecedents and team consequences	Journal of Occupational & Organizational Psychology	Quantitative/Surveys. Based on multisource and time-lagged data from 75 management consulting project teams,	Based on multisource and time-lagged data from 75 management consulting project teams, regression and bootstrapping results support most of the hypotheses. Supplementary analysis reveals that participative leadership has an inverted U-shaped relationship with team efficiency when directive leadership is low, implying that leadership is a complex behavioral process rather than a simple choice between seemingly contradictory behaviors.	<ol style="list-style-type: none"> <li>1. Regulatory mode</li> <li>2. Directive leadership</li> <li>3. Participative leadership</li> <li>4. Team efficiency</li> </ol>



96	Li, J., Zhao, M., Xia, G., & Liu, C. (2018).	The relationship between team hometown diversity and team creativity: from the Chinese perspective.	Sustainability	Quantitative/Surveys	<p>This work was among the first to investigate the relationship between team members' hometown diversity and team creativity, which provides a new perspective on team creativity, especially in China. Leaders may improve their team creativity by getting familiar with the diversity of employees and maximizing the team members' identification to the company as well as promoting team information exchange and motivating proactive and divergent thinking.</p> <p>Specifically, team hometown diversity was negatively related to team creativity, partly through the role of team information exchange. Leaders should be clear about that when the other demographic factors are controlled, the function of team hometown diversity of the team members is obviously important. Based on common attributes, such as dialect and culture, team members are willing to communicate and interact with each other and possibly put forward novel ideas easily when different views collide. Thus, team leaders should create a suitable circumstance for this kind of interaction. Additionally, the higher the identification of team members on their team, the less impact the team hometown diversity would function on the information exchange of team members, which is helpful for team leaders, especially when it is hard to allot demographically similar employees into one team. Consistent with enhancing team identification, encouraging employees to think outside the box is what team leaders can also do to promote team creativity.</p>	<ol style="list-style-type: none"> <li>1. Team Hometown Diversity</li> <li>2. Team Information Exchange</li> <li>3. Team Identification</li> <li>4. Team Conformity</li> </ol>
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97	Li, M., & Zhang, P. (2016).	Stimulating learning by empowering leadership: can we achieve cross-level creativity simultaneously?.	Leadership & Organization Development Journal	Quantitative/Surveys	The results show that team and individual learning mediate the effects of empowering leadership on creativity at the team and individual levels. Interestingly, the authors also found that team learning negatively moderates the indirect and positive effect of individual empowering leadership on individual creativity.	<ol style="list-style-type: none"> <li>1. Empowering leadership</li> <li>2. Team learning</li> <li>3. Individual learning behaviors</li> <li>4. Individual creativity</li> </ol>
98	Li, R., Wang, H., & Huang, M. (2018).	From Empowerment to Multilevel Creativity: The Role of Employee Self-Perceived Status and Feedback-Seeking Climate	Journal of Leadership & Organizational Studies	Quantitative/Surveys. A sample of 84 teams with 392 employees.	LEB includes behavior such as allowing employees to use their own discretion, asking for their opinions during making decisions, recognizing the importance of their work, and so on. It can help employees find meaning, develop competence, have self determination, and feel the importance in their work, which can increase their perceived relational fairness. In general, instead of just pushing for new ideas, making employees feel that they are fairly treated and are working in a feedback-welcoming environment would be a better strategy to spur creativity. In addition, in the empowering process, leaders should avoid potential conflicts around status that would undermine the feedback seeking climate and cause a reduction in team creativity	<ol style="list-style-type: none"> <li>1. Leadership Empowerment Behavior</li> <li>2. Employee Self-Perceived Status.</li> <li>3. Feedback-seeking climate</li> <li>4. Status Conflict</li> <li>5. Employee Creativity</li> </ol>
99	Li, T., & Yue, C. (2019).	Working with creative leaders: An examination of the relationship between leader and team creativity.	Social Behavior and Personality: an international journal	Quantitative/Surveys	Little research attention has been paid to the importance of creative leadership for team creativity. We proposed that the leader's level of creativity would be a core component of effective leadership, and that leader creativity would be positively related to team creativity and moderated by leader empowerment and task complexity. Participants were 382 employees and their leaders from 89 project teams in China. Results showed that there was a positive relationship between leader creativity and team creativity, and that	<ol style="list-style-type: none"> <li>1. Leader creativity</li> <li>2. Leader empowerment</li> <li>3. Task complexity</li> </ol>

					the relationship was fortified by task complexity but weakened by leader empowerment.	
100	Li, Y., Fu, F., Sun, J. M., & Yang, B. (2016).	Leader-member exchange differentiation and team creativity: An investigation of nonlinearity	Human Relations	Quantitative/Surveys 59 teams from multiple Chinese companies.	An investigation based on 59 teams from multiple Chinese companies was conducted. The results indicated that LMX differentiation has an inverted U-shaped relationship with team creativity, and LMX median moderates the inverted U-shaped relationship. Specifically, for teams with a low LMX median, the curvilinear relationship is stronger, whereas for teams with a high LMX median, the slope of the curve becomes nearly flat, thus losing the inverted-U effect.	1. Team LMX quality 2. LMX differentiation
101	Li, Y., Li, N., Li, C., & Li, J. (2020).	The Boon and Bane of Creative "Stars": A Social Network Exploration of How and When Team Creativity Is (and Is Not) Driven by a Star Teammate.	<i>Academy of Management Journal</i>	Quantitative/two-wave field Survey	A creative star who occupies a central position in the team workflow network has both a positive direct effect on team creativity and a negative indirect effect on team creativity via reducing nonstars' learning. Study also reveals that team coordination can mitigate the detrimental effect of a star's centrality on nonstars' learning behavior.	1. Team creative stars' centrality 2. Team coordination 3. Nonstars' learning activities
102	Lin, C. J., & Li, C. R. (2020).	Differential effects of team level expertise diversity and individual level expertise dissimilarity on creativity: the moderating role of member social skills and leader social behavior.	Current Psychology	Quantitative/Surveys	By recognizing the distinct effects of team- and individual-level diversity on individual and team creativity, our study would benefit to existing understanding of the effects of diversity. Specifically, this study investigates a novel contrasting effect in which team-level expertise diversity is positively associated with individual creativity, but individual-level expertise dissimilarity negatively affects individual creativity. It further investigates whether this divergent effect is moderated by employee social skills, which mitigate the negative effects of individual expertise dissimilarity, and by leader social behavior, which can weaken the positive effect of team expertise	1. Expertise Diversity 2. Expertise Dissimilarity 3. Member Social Skills 4. Leader Social Behavior 5. Individual Creativity

					diversity. Data were collected from 368 members of 57 research and development (R&D) teams in two high-technology companies in Taiwan, and support the research hypotheses, providing a clear view of the complex relationships that team- and individual-level diversity have with creativity. The effects of diversity on creativity in teams can be differentiated based on both team- and individual-level diversity and such distinct effects will be moderated by employee social skills and leader social behavior.	
103	Liu, H. Y. (2022).	The Moderating Role of Team Conflict on Teams of Nursing Students.	International Journal of Environmental Research and Public Health	Quantitative	This study makes contributions to the literature on interaction behaviors and creativity of teams of nursing students in three ways. First, this study is the first to our knowledge to explore the relationships between interpersonal interactions that affect how collaborations of nursing students are in capstone courses with an IPE format. At the end of interdisciplinary capstone courses created to encourage nursing students to collaborate with non-nursing students to develop healthcare products, cognition-based swift trust had a direct association with creativity, but affect-based swift trust was unrelated. Second, our study expanded on these previous findings by assessing swift trust as two separate elements and conflicts as three components, rather than one. Thus, our findings provide additional support that cognitive-based swift trust plays a more important role than the affective element for the formation and maintenance of swift trust in temporary teams. Moderation analyses showed that relationship conflicts exerted negative moderation effects on the correlation of cognition-based swift trust with creativity. Third,	1. Team swift trust 2. Team conflict

					our findings also provide additional support that relationship conflicts play more important roles than the process conflict component for the indirect effects on the relationship of cognition-based swift trust with creativity on the teams. This study can guide nursing educators to implement effective IPE in development effective IPE in nursing programs, particularly for capstone courses in Taiwan.	
104	Liu, S., Wei, H., Xin, H., & Cheng, P. (2021).	Task conflict and team creativity: The role of team mindfulness, experiencing tensions, and information elaboration.	Asia Pacific Journal of Management	Quantitative	Two field studies with four-wave, multi-source samples were conducted. Results indicate that task conflict facilitates team creativity through the sequential mediation of experiencing tension and information elaboration. In addition, team mindfulness enhances the positive relationship between task conflict and experiencing tension, and the positive relationship between experienced tension and information elaboration.  When team mindfulness is high, the relationship between task conflict and team creativity through the mediation of experiencing tension and information elaboration gets stronger than when it is low.	<ol style="list-style-type: none"> <li>1. Task conflict</li> <li>2. Experiencing tension</li> <li>3. Information elaboration</li> <li>4. Team mindfulness</li> </ol>
105	Liu, X., Zhang, X., & Zhang, X. (2020).	Faultlines and team creativity: the moderating role of leaders' cognitive reappraisal.	Small Group Research	Quantitative/Surveys	Informational diversity is perceived as the key to improving team creativity. However, alignment along multiple informational diversity attributes, known as information-based faultlines, can both provide diverse knowledge and form subgroup bias. The key to reaping the benefits of information-based faultlines is to understand how to utilize the diversified knowledge and, meanwhile, reduce subgroup bias. This study aims to examine how team leaders' cognitive reappraisal can play a such role. Based on data from 68 teams, we found that (1) information-	<ol style="list-style-type: none"> <li>1. Information-based faultline strength</li> <li>2. Cognitive reappraisal</li> </ol>

					based faultlines had a positive effect on knowledge utilization when team leaders' cognitive reappraisal was high, (2) knowledge utilization had a positive effect on team creativity, and (3) team leaders' cognitive reappraisal moderated the indirect relationship between information-based faultlines and team creativity through knowledge utilization.	
106	Liu, Y., Keller, R. T., & Bartlett, K. R. (2021).	Initiative climate, psychological safety and knowledge sharing as predictors of team creativity: A multilevel study of research and development project teams.	Creativity and Innovation Management	Quantitative/Surveys	We propose and test an organizational learning contingency model of creativity, reflecting on how initiative climate interacts with employees' psychological safety in influencing knowledge sharing and teams' creative performance, by collecting data from 352 employees comprising 88 R&D teams in Taiwan at two time points and from two sources, team members and team leaders. Results indicated that knowledge sharing acts as a mediator in the relationship between initiative climate and team creativity. Results also supported the cross-level moderation effect of initiative climate on the relationship between psychological safety and knowledge sharing behaviour.	<ol style="list-style-type: none"> <li>1. Perceived psychological safety</li> <li>2. Initiative climate</li> <li>3. Individual knowledge sharing behaviour</li> <li>4. Team knowledge sharing</li> </ol>
107	Luan, K., Ling, C. D., & Xie, X. Y. (2016).	The nonlinear effects of educational diversity on team creativity.	Asia Pacific Journal of Human Resources	Quantitative/Surveys A sample of 47 work teams.	The results from a sample of 47 work teams support the significant moderating effect of knowledge integration capability on the curvilinear relationship between educational diversity and team creativity. Key point 1 Team educational diversity has a curvilinear effect on team creativity. 2 The degree to which teams utilize team diversity is central to explaining the effects of diversity. 3 Knowledge integration capability moderates the relationship between	<ol style="list-style-type: none"> <li>1. Team educational diversity</li> <li>2. Knowledge integration capability</li> </ol>

					team educational diversity and team creativity.	
108	Ma, Z., Long, L., Zhang, Y., Zhang, J., & Lam, C. K. (2017).	Why do high-performance human resource practices matter for team creativity? The mediating role of collective efficacy and knowledge sharing.	Asia Pacific Journal of Management	Quantitative/Surveys	IPO model	<ol style="list-style-type: none"> <li>1. High-performance human resource practices scale</li> <li>2. Team efficacy</li> <li>3. Team knowledge sharing</li> </ol>
109	Madrid, H. P., Totterdell, P., Niven, K., & Barros, E. (2016).	Leader affective presence and innovation in teams	Journal of Applied Psychology	Quantitative/Surveys. 350 individuals working in 87 teams of 2 public organizations and 734 individuals working in 69 teams of a private organization	In two multisource studies, based on 350 individuals working in 87 teams of two public organizations and 734 individuals working in 69 teams of a private organization, we tested and supported hypotheses that team leader positive affective presence was positively related to team information-sharing, whereas team leader negative affective presence was negatively related to the same team process. In turn, team information-sharing was positively related to team innovation, mediating the effects of leader affective presence on this team output. The results indicate the value of adopting an interpersonal individual differences approach to understanding how affect-related characteristics of leaders influence interaction processes and complex performance in teams.	<ol style="list-style-type: none"> <li>1. Leader positive affective presence</li> <li>2. Leader negative affective presence</li> <li>3. Affective presence</li> <li>4. Team information sharing</li> </ol>
110	Manyike, R. (2019).	Formalization Structure and Team Creativity in High Tech Firms: The Mediating Role of Task Conflict	International Journal of Research in Business and Social Science	Quantitative/Surveys. 417 employees in 67 teams and 55 team leaders.	Findings indicated that formalization structure affects team creativity, and that task conflict mediated the relationship between formalization structure and team creativity. Thus, teams with formalization structure have moderate task conflict, which in turn contribution towards team creativity.	<ol style="list-style-type: none"> <li>1. Structure</li> <li>2. Task conflict</li> </ol>
111	Martinaityte, I., Unsworth, K. L., & Sacramento, C. A. (2019).	Is the project 'mine' or 'ours'? A multilevel investigation of the effects of individual	Journal of Occupational and Organizational Psychology	Quantitative/Surveys	Challenging the dominant view that individual psychological ownership (IPO) is only relevant at the individual and collective psychological	<ol style="list-style-type: none"> <li>1. Team and collective psychological ownerships</li> <li>2. team engagement</li> </ol>

		and collective psychological ownership.			ownership (CPO) at the group level, we developed a multilevel model of psychological ownership. We distinguished theoretically and empirically between two types of ownerships and test how IPO and CPO effect individual and team behaviours. Data were obtained across three-time points from 186 members and their managers in 39 project teams from multiple countries. Results revealed that, at the individual level, both IPO and CPO were positively related to individual engagement which, in turn, related to individual creativity. However at the group level, group-mean IPO was negatively related to team engagement, while group-mean CPO was positively related to team engagement. Team engagement, in turn, was positively related to team creativity. This study sheds light on IPO and CPO as being independent constructs with distinct positive and negative effects on individual and team processes and outcomes.	
112	Mascareño, J., Rietzschel, E., & Wisse, B. (2020).	Envisioning innovation: Does visionary leadership engender team innovative performance through goal alignment?.	Creativity and Innovation Management	Experimental study	Visionary leaders paint an image of the future with the intention to persuade others to contribute to the realization of that specific future. In the current study, we test the hypothesis that visionary leadership stimulates team creativity and innovation because visionary leadership promotes goal alignment amongst team members which, in turn, facilitates team creativity and innovation. In an experimental study (N = 50 groups), we found that goal alignment indeed mediated the relationship between visionary leadership and team creativity, but not between visionary leadership and team innovation. In a field study (N = 308 respondents) we	<ol style="list-style-type: none"> <li>1. Visionary leadership</li> <li>2. Goal alignment</li> <li>3. Communication quality</li> </ol>



					found visionary leadership to be related to both team creativity and innovation through goal alignment. Moreover, the field study also showed that communication quality strengthened the relationship between goal alignment and team innovation. We discuss the theoretical and practical implications of visionary leadership in teams where creativity and innovation are desirable team performance outcomes.	
113	Mathisen, G. E., Einarsen, S., Jørstad, K., & Brønnick, K. S. (2004).	Climate for work group creativity and innovation: Norwegian validation of the team climate inventory (TCI).	Scandinavian journal of psychology	Quantitative	The present study assessed the psychometric properties and the validity of the Norwegian translation of the Team Climate Inventory (TCI). The TCI is a measure of climate for innovation within groups at work and is based on the four-factor theory of climate for innovation (West, 1990). Cronbach's alpha revealed satisfactory reliabilities and exploratory factor analysis successfully extracted the four original factors as well as a fifth factor that has also been reported in other studies ( $N= 195$ teams from a wide range of professions). Results from confirmatory factor analysis, using a different sample ( $N= 106$ teams from the Norwegian public postal service), suggested that the five-factor solution had the most parsimonious fit. Criterion validity was explored by correlating TCI scores from 92 post offices and 395 postal distribution teams with customer satisfaction scores. Significant positive relationships were found between three of four TCI scales and customer satisfaction.	TCI
114	Mathisen, G. E., Martinsen, Ø., & Einarsen, S. (2008).	The relationship between creative personality composition,	Journal of Creative Behavior	Quantitative/Surveys 29 teams in a television production company.	The personality composition in each of 29 teams in a television production company was operationalized by mean scores for each creative personality	1. Team climate for innovation 2. Creativity-relevant personality factors

		innovative team climate, and team innovativeness: An input-process-output perspective.			variable, as well as the combination of different creative personality variables within a team. The team climate variable "vision" mediated the relationship between the mean level of associative orientation in teams and team innovation. The team climate variable "support of innovation" mediated the relationship between the joint variables of mean level of ambition x mean level of motivation and team innovation. The results indicated that when there are relationships between creative personality composition and team innovativeness, they are mediated by an innovative team climate.	
115	Wang, M. H., Huang, C. F., & Yang, T. Y. (2012).	The Effect of Project Environment on the Relationship between Knowledge Sharing and Team Creativity in the Software Development Context.	International Journal of Business & Information	Experimental/Surveys	KS and project environments are enhancing Team Creativity especially Software development teams	1. Knowledge sharing 2. Project environment
116	Men, C., Fong, P. S., Luo, J., Zhong, J., & Huo, W. (2019)	When and how knowledge sharing benefits team creativity: The importance of cognitive team diversity.	Journal of Management and Organization	Quantitative/Surveys. A sample of 86 knowledge worker teams involving 381 employees and employers in China.	Drawing on componential theory of creativity (Amabile, 1996), our study has presented a theoretical and integrated framework to delineate the relationship between knowledge sharing and team creativity. Specifically, we pinpointed one mechanism behind the effect of knowledge sharing on team creativity. In addition, we shed light on cognitive team diversity, through which knowledge sharing exerts positive effects on team creativity.	1. Knowledge sharing 2. Absorptive capacity 3. Knowledge integration 4. Cognitive team diversity
117	Men, C., Luo, J., Fong, P. S., Zhong, J., & Huo, W. (2020).	Translating external knowledge to team creativity in turbulent environments: The role of absorptive capacity	The Journal of Creative Behavior	Quantitative/Surveys A sample of 96 teams involving 421 employees in China.	We tested our hypotheses with a sample of 96 teams involving 421 employees in China. Results demonstrated that external knowledge search related positively to team creativity, fully mediated by both	1. External knowledge search 2. Absorptive capacity 3. Knowledge integration 4. Environmental dynamism

		and knowledge integration			absorptive capacity and knowledge integration. In addition, environmental dynamism played a moderating role in the relation between external knowledge search and absorptive capacity, as well as in the relation between external knowledge search and knowledge integration.	
118	Misra, S. (2011).	R&D Team Creativity: A Way To Team Innovation.	International Journal of Business Insights & Transformation	Quantitative/Survey. A survey questionnaire was constructed to measure the influence factors for R&D team creativity in Indian context, based on KEYS by Amabile (1996).	This study explored and validated five major factors that affect R&D team creativity by team shared mental models in Indian context, including task characteristics, team formation, team leadership, member characteristics, and organizational environment. Results showed that we should pay attention to the team interaction with member, task and process to improve team creativity.	<ol style="list-style-type: none"> <li>1. basic information of R&amp;D teams and enterprises.</li> <li>2. Member characteristics</li> <li>3. Organizational environment</li> <li>4. Task characteristics</li> <li>5. Team formation</li> <li>6. Team leadership</li> <li>7. Team shared mental models</li> </ol>
119	Mo, S., Ling, C. D., & Xie, X. Y. (2019).	The curvilinear relationship between ethical leadership and team creativity: The moderating role of team faultlines.	Journal of Business Ethics	Quantitative/Surveys. Analyses of multisource data from 50 team supervisors and 186 employees	Following social learning theory and an antecedent-benefit-cost framework, we conducted analyses of multisource data from 50 team supervisors and 186 employees, which revealed an inverted U-shaped relationship between ethical leadership and team creativity. The teams exhibited more creativity when there was a moderate level of ethical leadership than when there were very low or very high levels. Moreover, from an interactional perspective, we found that team faultlines significantly moderated the curvilinear relationship between ethical leadership and team creativity such that the inverted U-shaped relationship was more significant among teams with weak team faultlines.	<ol style="list-style-type: none"> <li>1. Ethical Leadership</li> <li>2. Team Faultline Strength</li> </ol>
120	Mehmood, M. S., Jian, Z., Akram, U., & Tariq, A. (2020).	Entrepreneurial leadership: The key to develop creativity in organizations.	Leadership & Organization Development Journal	Quantitative/Surveys	Research limitations/implications – The findings of the current study provide guidance to managers and businessmen on how to develop the creative skills of employees by	<ol style="list-style-type: none"> <li>1. Entrepreneurial leadership</li> <li>2. Psychological safety</li> <li>3. Psychological empowerment</li> </ol>

					adopting entrepreneurial leadership behaviors. Besides, this study enriches the literature by exploring the performance mechanism of entrepreneurial leadership to develop employee creativity	
121	Oedzes, J. J., Rink, F. A., Walter, F., & Van Der Vegt, G. S. (2019).	Informal hierarchy and team creativity: The moderating role of empowering leadership.	Applied Psychology	Quantitative. Using a sample of 56 organisational work teams comprising 304 individuals from a wide range of industries.	They found that stronger informal influence hierarchies related negatively with team creativity when the formal leader exhibited little empowering behaviour. When the formal leader acted in more empowering ways, by contrast, this negative relationship was dampened. These findings provide new knowledge on the role of informal influence hierarchies for team creativity and advance our understanding of how informal hierarchical relations and formal leadership processes can jointly shape important team outcomes.	1. Informal Hierarchy Strength 2. Empowering Leadership
122	Park, S., Park, W., Kim, S., & Kim, C.Y. (2012).	Team Learning and Creativity: the Roles of Exploitation and Team Cohesiveness	Journal of Organizational Psychology	Quantitative/Surveys	Exploitation, as a means of achieving team creativity, has been thought to be limited compared with exploration. In an empirical study, we investigated the potential value of team exploitation as a strong independent initiator of team creativity, considering team cohesiveness as a moderator of that relationship. Our results support our hypothesis that when team cohesiveness is high, team exploitation exhibits a U-shaped relationship with creativity, whereas when team cohesiveness is low, the relationship is inverted-U-shaped.	1. Team Exploitation and Team Exploration 2. Team Cohesiveness
123	Park, W. W., Lew, J. Y., & Lee, E. K. (2018)	Team knowledge diversity and team creativity: The moderating role of status inequality	Social Behavior and Personality: An International Journal	Quantitative/Surveys. Data from 325 teams of employees at 10 companies in South Korea.	Results showed that task knowledge diversity was positively associated with team creativity and a team's status inequality in terms of organizational tenure moderated the relationship in a negative way.	1. Task knowledge diversity 2. Team status inequality
124	Pearsall, M. J., Ellis, A. P., &	Unlocking the effects of gender faultlines on	Journal of Applied Psychology	Experimental study	The purpose of this study was to use faultline theory to examine the effects	

	Evans, J. M. (2008).	team creativity: Is activation the key?.			of gender diversity on team creativity. Results from 80 teams working on an idea generation task indicated that the activation of gender faultlines negatively affected the number and overall creativity of ideas. However, gender faultlines that were not activated had no effect. Results also indicated that the relationship between activated gender faultlines and team creativity was partially mediated by the level of conflict within the team. Specifically, emotional conflict partially mediated the effects of activated gender faultlines on the number of ideas generated.	
125	Peltokorpi, V., & Hasu, M. (2014).	How Participative Safety Matters More in Team Innovation as Team Size Increases	Journal of Business and Psychology	Quantitative/Surveys Data used in statistical analyses were obtained from 531 employees in 124 technology research teams.	Findings The findings support the hypothesis, showing that not only team size, but also team size together with participative safety facilitates team innovation. Implications The findings show that not only large teams, but also large teams with participative safety are innovative. Team leaders thus need to ensure that collaborative rather than competitive environment prevails in their teams	1. Participative Safety 2. Team Size
126	Peng, J., Wang, Z., & Chen, X. (2019).	Does Self-Serving Leadership Hinder Team Creativity? A Moderated Dual-Path Model.	Journal of Business Ethics	Quantitative/Surveys A sample of 107 R&D teams.	Results from a sample of 107 R&D teams revealed that self-serving leadership not only reduced team psychological safety, but also induced team knowledge hiding, both of which ultimately affected team creativity. The presence of high task interdependence buffered the destructive effect of self-serving leadership on team creativity via team psychological safety as well as the indirect effect via knowledge hiding.	1. Self-Serving Leadership 2. Task Interdependence 3. Team Knowledge Hiding 4. Team Psychological Safety
127	Peralta, C. F., Saldanha, M. F., Lopes, P. N., Lourenço, P. R., & Pais, L. (2019).	Does supervisor's moral courage to go beyond compliance have a role in the relationships between	Journal of Business Ethics	Quantitative/Surveys	Drawing on the interactionist perspective of innovation and on the sustainable ethical strength framework, the present research examines the moderating role of supervisors' moral	1. Teamwork quality 2. Supervisors' courage to go beyond compliance 3. Team idea implementation

		teamwork quality, team creativity, and team idea implementation?			courage to go beyond compliance in the relationships between teamwork quality, team creativity, and team idea implementation. Two field studies, using multi-source and multi-wave data, indicated that teamwork quality was positively related to team idea implementation via team creativity, particularly when team supervisors revealed moral courage to go beyond compliance. When supervisors lacked such courage, teams struggled to develop creative ideas and to implement them. Robustness checks and tests of alternative theoretical explanations indicated that our model and findings are robust. From a theoretical perspective, our findings indicate that, due to its empowering and promotion focused orientation, supervisors' courage to go beyond compliance has relevance for the teamwork and team innovation domains, playing an important moderating role in defining whether quality teamwork leads to enhanced team creativity and team idea implementation.	
128	Pillay, N., Park, G., Kim, Y. K., & Lee, S. (2020).	Thanks for your ideas: Gratitude and team creativity.	Organizational behavior and human decision processes	Experimental study	Many ideas and products are borne out of collaborative efforts among members of teams and workgroups. We argue that gratitude intervention for teams would serve as a powerful facilitator for information elaboration. Study 1 found that teams in the gratitude condition increased information elaboration. Study 2 compared teams in gratitude emotion and teams in positive emotion in general. Teams in the gratitude condition generated highly creative ideas, due to more information elaboration. On the other hand, teams in the positive emotion condition	<ol style="list-style-type: none"> <li>1. Information elaboration.</li> <li>2. Team idea creativity</li> <li>3. Number of ideas generated</li> <li>4. Felt-gratitude</li> <li>5. Positive emotion</li> <li>6. Number of utterances (individual level)</li> <li>7. Idea acceptance (individual level).</li> <li>8. Enthusiasm/Confidence (individual level)</li> </ol>

					expressed greater enthusiasm and confidence in their ideas and immediately accepted the ideas suggested, which led to an increase in the quantity of ideas. Our findings suggest that gratitude facilitates intellectual exchange in groups, which in turn enhances team creativity.	
129	Pirola-Merlo A. and Mann L. (2004)	The relationship between individual creativity and team creativity: aggregating across people and time	Journal of Organizational Behavior	Quantitative. They proposed a multilevel theoretical model and using a sample of 54 R&D teams.	This paper first describe a selection theories that explain workplace creativity at individual and team levels and describe previous theoretical and empirical work linking individual to group performance. Then they develop a multi-level model which explains team creativity as a sum of team member creativity over time. Finally they report the findings from a study that tests the assumptions and predictions of this model	<ol style="list-style-type: none"> <li>1. Individual creativity</li> <li>2. Organizational encouragement of innovation.</li> <li>3. Team climate for innovation</li> </ol>
130	Qi, M., Armstrong, S. J., Yang, Z., & Li, X. (2021).	Cognitive diversity and team creativity: Effects of demographic faultlines, subgroup imbalance and information elaboration.	Journal of Business Research	Quantitative/Surveys	Our study provides new theoretical insights into this field of research by extending the categorization–elaboration model (CEM) through an examination of the interaction effects of multiple convergent demographic diversities on information elaboration, team processes and creativity. Based on comparative fit and an in-group projection model of social categorization theory, the moderating influence of demographic faultlines and subgroup imbalance are also investigated. Using hierarchical regression analysis (HRA), empirical support from 453 team members nested within 91 teams across five organizations was found for the mediating role of team information elaboration on the relationship between cognitive diversity and team creativity.	<ol style="list-style-type: none"> <li>1. Cognitive diversity</li> <li>2. Information elaboration</li> <li>3. Demographic faultlines</li> <li>4. Subgroup balance</li> </ol>
131	Qin, X., Yam, K. C., Chen, C., Li,	Talking about COVID-19 is positively	Journal of Applied Psychology	Quantitative/Multi-source	The COVID-19 pandemic has dramatically affected everyone's work	<ol style="list-style-type: none"> <li>1. Team COVID-19 Talk</li> <li>2. Team Cultural Tightness</li> </ol>

	W., & Dong, X. (2021).	associated with team cultural tightness: Implications for team deviance and creativity.			and daily life, and many employees are talking with their coworkers about this widespread pandemic on a regular basis. In this research, we examine how talking about crises such as COVID-19 at the team level affects team dynamics and behaviors. Drawing upon cultural tightness–looseness theory, we propose that talking about the COVID-19 crisis among team members is positively associated with team cultural tightness, which in turn benefits teams by decreasing team deviance but hurts teams by decreasing team creativity. Furthermore, we suggest that team virtuality moderates and weakens these indirect effects because face-to-face communication about COVID-19 is more powerful in influencing team cultural tightness than virtual communication. Results from a multisource, three-wave field study during the pandemic lend substantial support to these hypotheses.	3. Team Virtuality 4. Team Deviance
132	Wu, Q., & Cormican, K. (2016).	Shared Leadership and Team Creativity: A Social Network Analysis in Engineering Design Teams	Journal of Technology Management & Innovation	Quantitative. Data was collected from a sample of 22 engineering design teams who adopt a shared leadership approach.	Our results support previous findings that the density of a shared leadership network is positively related to team creativity. In contrast, we learned that centralization exerts a negative influence on it. Moreover, while we found that there is no evidence to support a positive correlation between efficiency and team creativity, we demonstrate an inverted U-shaped relationship between strength and team creativity in a shared leadership network. These findings are important because they add to the academic debate in the shared leadership area and provide valuable insights for managers.	1. Shared leadership networks
133	Qu, X., & Liu, X. (2017).	Informational Faultlines, Integrative	Group & Organization Management	Quantitative.	Using a sample of 66 research and development (R&D) teams from China, we obtained the following	1. Informational faultline strength 2. Team prosocial motivation 3. External knowledge acquisition



		Capability, and Team Creativity		A sample of 66 research and development (R&D) teams from China.	results: (a) Team prosocial motivation positively moderated the relationship between informational faultlines and external knowledge acquisition, and the relationship between informational faultlines and internal knowledge integration. (b) External knowledge acquisition and internal knowledge integration, which constitute team integrative capability, were positively related to team creativity. The direct effect of external knowledge acquisition on team creativity can be mediated by internal knowledge integration. (c) External knowledge acquisition and internal knowledge integration both mediated the interactive effect of informational faultlines and team prosocial motivation on team creativity.	4. Internal knowledge integration
134	Reiter-Palmon, R., & Murugavel, V. (2018)	The effect of problem construction on team process and creativity.	Frontiers in psychology	Experimental Study The study was conducted using 65 groups. Each group consisted of three individuals who signed up for the study in the same timeslot.	This study explores team social processes in relation to problem construction instructions. Using student teams solving a real-world problem, the results of this study revealed that teams that engaged in problem construction and identification generated more original ideas than teams that did not engage in such processes. Moreover, higher satisfaction and lower conflict was observed among groups that engaged in problem construction compared to groups that did not engage in problem construction. These findings highlight the utility of problem construction for teams engaging in creative problem-solving.	1. Team conflict 2. Team satisfaction
135	Reiter-Palmon, R., & Leone, S. (2019).	Facilitating creativity in interdisciplinary design teams using cognitive processes: A review.	Journal of Mechanical Engineering Science	Literature Review	In this paper, they review the team creativity psychology and management literature, and discuss how cognitive processes that facilitate creativity can be used by engineering and design teams. Specifically, past research has	1. rGaps in Problem Construction 2. Idea generation 3. Idea evaluation and selection

					shown problem construction that allows teams to develop a structure to guide solving ambiguous problems. Further, problem construction allows teams to develop a shared understanding of the problem which aids in later processes. While there is significant research on idea generation, results suggest that teams may not be better at this than individuals. In this review, they discuss how idea generation in teams can mitigate some of the issues that lead to this effect. Finally, team research has only recently began to determine what factors influence idea evaluation and selection for implementation.	
136	Reiter-Palmon, R., Wigert, B., & de Vreede, T. (2012).	Team creativity and innovation: The effect of group composition, social processes, and cognition.	Handbook of organizational creativity	Literature Review	In this chapter they review the research to date on team creativity and innovation. For the purpose of organizing this chapter, we will adopt the typical Input–Process–Output (I-P-O) model of team effectiveness (Kozlowski & Ilgen, 2006; Salas, Burke, & Stagl, 2004). They focus on team composition in terms of individual characteristics of team members as input. Processes are the activities that team members engage in to solve the problem or carry out the task. Specifically, they focus on two major classes of team processes; team social processes and team cognition. Team output is defined as team creativity and innovation.	<b>Team Composition</b> 1. Demographic Diversity 2. Functional Diversity 3. Cognitive Style and Personality 4. Team Membership Change <b>Social Processes</b> 1. Team Collaboration 2. Communication 3. Trust and Psychological Safety 4. Backup and Support 5. Team Conflict 6. Cohesion 7. Team Efficacy/Potency <b>Cognitive Processes</b> 1. Idea generation and Brainstorming 2. Creative Problem Solving Processes 3. Shared Mental Models 4. Team Reflexivity
137	Rong, P., Li, C., & Xie, J. (2019).	Learning, trust, and creativity in top management teams: Team reflexivity as a moderator	Social Behavior and Personality: An International Journal	Quantitative/Surveys. Data obtained from 594 executives in 54 TMTs.	Multiple regression analyses of data obtained from 594 executives in 54 TMTs revealed that team learning had a significant positive impact on TMT creativity, that team trust had a partial mediating effect in the relationship between team learning and TMT	1. Team learning 2. Team trust 3. Team reflexivity

					creativity, and that TMT reflexivity enhanced the positive influence of team learning on team trust. Our findings reveal the inherent relationships among team learning, team trust, team reflexivity, and TMT creativity, and can provide scientific guidance to strengthen TMT construction, team learning, and team reflexive practice.	
138	Rong, P., & Xie, J. (2021).	Can transactive memory system improve top management team's creativity? The moderating role of team identity.	Current Psychology	Quantitative/Surveys	<p>"Theoretical Contributions</p> <ul style="list-style-type: none"> <li>• Unlike previous studies on general team creativity, this study aims to explore the influence of TMS on TMT's creativity from perspective of team process.</li> <li>• Based on Lewis et al. (2005), TMS was introduced into TMT research field in this study and divided into three dimensions: Team expertise, team trust and team coordination.</li> <li>• Second, by analyzing the moderating effect of team identity, this study identified the key situational factor which TMS affected TMT's creativity.</li> <li>• This promoted the understanding to boundary conditions for the positive effect of team identity.</li> <li>• Third, in the organizational context, this study found the moderation of higher team identity made the original significant influence of team trust on TMT's creativity no longer significant.</li> </ul> <p>Practical Contributions</p> <ul style="list-style-type: none"> <li>• Study: TMS could promote TMT's creativity.</li> <li>• TMT should pay more attention to TMS.</li> <li>• enterprises should strive to strengthen the sense of identity for</li> </ul>	<ol style="list-style-type: none"> <li>1. TMS</li> <li>2. Team identity</li> </ol>

					team members towards TMT, enhance the cohesion and centripetal force within TMT."	
139	Rong, P., Zhang, L., & Xie, J. (2019).	Does team conflict affect top management team creativity? Team climate as a moderator.	Social Behavior and Personality: an international journal	Quantitative/Surveys	We examined whether team conflict affects top management team (TMT) creativity, and if team climate moderates this relationship. Multiple regression analysis results obtained with 684 executives in 71 TMTs showed that cognitive conflict had a significant positive impact and emotional conflict had a significant negative impact on TMT creativity. In addition, team climate positively regulated the impact of cognitive conflict on TMT creativity and negatively regulated the impact of emotional conflict on TMT creativity. Theoretical and practical implications, including ways for enterprises to strengthen team building and enhance TMT creativity, are discussed.	1. team conflict 2. team climate
140	Salazar, M. R., Feitosa, J., & Salas, E. (2017).	Diversity and team creativity: Exploring underlying mechanisms.	Group Dynamics: Theory, Research, and Practice	Experimental study	Past research demonstrates that the relationship between distinct subgroups within teams can be improved using interventions that emphasize commonalities, such as a superordinate team identity. By comparing the creative outcomes of 51 racio-ethnically diverse teams, comprised of both majority and minority racio-ethnic subgroups, this study shows when a common ingroup identity will lead to higher creativity. We hypothesize that there is a combined effect of racio-ethnic identity and superordinate team identity salience on the usefulness as well as the novelty of team's ideas. Accordingly, we found that superordinate team identity salience had a positive effect on novelty, but only when differences between subgroups were also made salient.	1. Team identity salience

					There was no joint influence on the usefulness of ideas. Furthermore, our results showed that the relationship between the simultaneous salience of the superordinate team and racio-ethnic identities on the novelty of ideas generated was mediated by team member's perception of the team as unified and inclusive. Collectively, racio-ethnic subgroup and superordinate identity salience foster a feeling of a common "we," which in turn support the generation of novel ideas.	
141	Santos, C. M., Uitdewilligen, S., & Passos, A. M. (2015).	Why is Your Team More Creative Than Mine? The Influence of Shared Mental Models on Intra-group Conflict, Team Creativity and Effectiveness.	Creativity & Innovation Management	Quantitative/Surveys. A total of 161 teams (735 individuals) participated in this study.	The findings suggest that SMM diminish the level of conflict and in turn improve team satisfaction. But SMM did not improve team performance by decreasing intra-group conflict. Our findings may suggest that as team members share an understanding about the task procedures, they previously define all the aspects related to task execution, and discuss different ideas and points of view. Thus, by the middle of the team lifecycle all these aspects have been clearly defined and they do not need to discuss these again. Finally, our findings show that intragroup conflict and creativity act as mediating mechanisms between SMM and team effectiveness. These results are in accordance with our expectations and show that as team members have SMM, they do not engage in conflict behaviours, which allows them to be creative and in turn to achieve high levels of performance and feel satisfied with the team.	<ol style="list-style-type: none"> <li>1. Shared mental models</li> <li>2. Intra-group conflict</li> </ol>
142	de Villiers Scheepers, M. J., & Maree, L. (2015).	Fostering team creativity in higher education settings.	e-Journal of Business Education & Scholarship of Teaching	Experimental study	The findings indicate that team creativity is enhanced using the Synectics approach, overcoming many stickiness challenges. Significant	<ol style="list-style-type: none"> <li>1. Teamwork</li> <li>2. Problem solving skills</li> <li>3. Supportive communication</li> </ol>

					improvements were observed for team creative skills immediately after the workshops and remained three months later. The study's findings add to knowledge of how creativity can be enhanced in teams overcoming inhibitors and suggesting that teams benefit from developing their team creative skills which favour problem-solving, novel ideas and innovation. Synectics, as a team creative problem-solving approach, can be used successfully to stimulate creativity in higher education contexts.	
143	Schilpzand, M. C., Herold, D. M., & Shalley, C. E. (2011).	Members' Openness to Experience and Teams' Creative Performance	Small Group Research	Quantitative/Surveys. A sample of 31 graduate student teams	Results from a study with 31 graduate student teams suggest that openness to experience is significantly related to team creativity. Furthermore, teams that are diverse on openness to experience have the highest levels of team creativity, as long as they have some team members that are low on openness and others that have a moderate level of openness to experience.	1. Openness to experience
144	Sethi, R., Smith, D. C., & Park, C. W. (2001).	Cross-functional product development teams, creativity, and the innovativeness of new consumer products.	JMR, Journal of Marketing Research	Quantitative/Surveys A study of 141 cross-functional product development teams	Innovativeness is positively related to the strength of superordinate identity in the team, encouragement to take risk, customers' influence, and active monitoring of the project by senior management. Social cohesion among team members has negative effect on innovativeness. The effect of superordinate identity on innovativeness is strengthened by encouragement to take risk and weakened by social cohesion. Functional diversity has no effect on innovativeness.	1. Customers' influence 2. Ease of communication in the firm 3. Encourage to take risk 4. Extend of competition among new products 5. Firm's reward structure for project teams 6. Functional diversity 7. Number of functional areas 8. Project manager's operating style: Diversity of input 9. Project manager's operating style: Challenging traditional perspectives 10. Project monitoring by senior management: Motivation to innovate

						<ul style="list-style-type: none"> <li>11. Project monitoring by senior management: Resource availability</li> <li>12. Resource availability</li> <li>13. Social cohesion: Discover of novel linkages</li> <li>14. Social cohesion: Challenging traditional perspectives</li> <li>15. Superordinate identity: Discover of novel linkages</li> <li>16. Superordinate identity: Motivation to innovate</li> <li>17. Superordinate identity: Challenging traditional perspectives</li> <li>18. Team Size</li> </ul>
145	Wu, S. (2015).	Exploring the effects of psychological capital and social capital on team creativity in ISD teams.	Journal of Organizational Innovation	Quantitative. Data from a study of 81 teams (394 members)	<p>Information system development (ISD) team members will contribute to the expression of team creativity if the capital they possess is diversified and rich.</p> <p>Therefore, the objective of this study is to investigate factors that affect team creativity from the perspectives of the individual's intrinsic cognitive psychological conditions (psychological capital), and interaction among team members (social capital). Drawing on data from a study of 81 teams (394 members), our statistically significant findings supported all of our hypotheses</p>	<ul style="list-style-type: none"> <li>1. Psychological Capital</li> <li>2. Individual creativity</li> <li>3. Social Capital</li> </ul>
146	Shin, S. J., & Zhou, J. (2007).	When Is Educational Specialization Heterogeneity Related to Creativity in Research and Development Teams? Transformational Leadership as a Moderator.	Journal of Applied Psychology	Quantitative/Survey using 75 research and development teams in Korea.	<p>Using a sample of 75 research and development teams, the authors theorized and found that transformational leadership and educational specialization heterogeneity interacted to affect team creativity in such a way that when transformational leadership was high, teams with greater educational specialization heterogeneity exhibited greater team creativity. In addition, teams' creative efficacy mediated this moderated relationship among</p>	<ul style="list-style-type: none"> <li>1. Educational specialization heterogeneity</li> <li>2. Team creative self-efficacy</li> <li>3. Team tenure</li> <li>4. Transformational leadership</li> </ul>

					educational specialization heterogeneity, transformational leadership, and team creativity. The authors discuss the implications of these results for research and practice.	
147	Shin, Y. (2014).	Positive group affect and team creativity: Mediation of team reflexivity and promotion focus	Small Group Research	Quantitative. 98 work teams in South Korea.	Structural equation modeling results showed that when controlling for negative group affective tone, PGAT was significantly associated with team creativity. Furthermore, team reflexivity and team promotion focus fully mediated the relationship between PGAT and team creativity, and this effect held when team prevention focus was controlled for. The findings provide meaningful insights into the roles of team reflexivity and team promotion focus as critical social-cognitive and social-motivational processes in the group affect-creativity relationship.	<ol style="list-style-type: none"> <li>1. Positive group affect tones</li> <li>2. Team promotion focus</li> <li>3. Team reflexivity</li> </ol>
148	Shin, Y., & Eom, C. (2014).	Team proactivity as a linking mechanism between team creative efficacy, transformational leadership, and risk-taking norms and team creative performance.	Journal of Creative Behavior	Quantitative/Surveys. The leaders and members of 103 Korean work teams.	The results of team-level regression analyses conducted on the leaders and members of 103 Korean work teams showed that team creative efficacy and risk-taking norms were positively associated with team creative performance. Furthermore, the relationships between team creative efficacy and team creative performance and between risk-taking norms and team creative performance were mediated by team proactivity. These findings offer new insights regarding the antecedents and the mediator of creative performance in team contexts and important implications for theory and practice.	<ol style="list-style-type: none"> <li>1. Risk-Taking Norms</li> <li>2. Team Creative Efficacy</li> <li>3. Team Proactivity</li> <li>4. Transformational Leadership</li> </ol>
149	Shin, Y., Kim, M., & Lee, S. H. (2017).	Reflection Toward Creativity: Team Reflexivity as a Linking Mechanism Between Team Goal	Journal of Business and Psychology	Methodology We conducted Study 1 on 68 student teams by using a two-wave time-lagged design. In Study 2, we	Findings Team learning goal orientation was significantly associated with team creative performance. While team learning and performance-prove goal orientations were equally influential in	<ol style="list-style-type: none"> <li>1. Team Goal Orientation</li> <li>2. Team Reflexivity</li> </ol>



		Orientation and Team Creative Performance		carried out a cross-sectional field study on 108 intact work teams in diverse Korean companies	predicting team reflexivity, team performance-avoid goal orientation had no relationship with team reflexivity and creative performance. Team reflexivity mediated the relationships between team learning and performance-prove goal orientations and team creative performance.	
150	Somech, A., & Drach-Zahavy, A. (2013).	Translating team creativity to innovation implementation: The role of team composition and climate for innovation.	Journal of Management	Quantitative, 96 primary care teams in Health organization	This study investigated team innovation as a process phenomenon by differentiating the creativity stage from the implementation stage. Based on the interactional approach, the authors argue that team composition (aggregated individual creative personality and functional heterogeneity) affects team creativity, which in turn promotes innovation implementation depending on the team's climate for innovation. Results from a study of 96 primary care teams confirmed that aggregated individual creative personality, as well as functional heterogeneity, promotes team creativity, which in turn interacts with climate for innovation such that team creativity enhances innovation implementation only when climate for innovation is high.	<ol style="list-style-type: none"> <li>1. Innovation implementation</li> <li>2. Team climate for Innovation</li> <li>3. Creativity-relevant personal characteristics.</li> <li>4. Team functional heterogeneity.</li> </ol>
151	Song, Z., Gu, Q., & Cooke, F. L. (2019).	The effects of high-involvement work systems and shared leadership on team creativity: A multilevel investigation	Human Resource Management	Quantitative/Surveys 668 employees from 112 teams in 41 organizations in China.	This study investigates the effects of high-involvement work systems (HIWS) on team creativity in terms of ability-motivation-opportunity theory and a team input-process-output model. It draws on a data set consisting of 668 employees from 112 teams in 41 organizations in China. The results reveal that HIWS are positively related to team creativity, not only directly, but also indirectly through a sequential mediating mechanism of involvement climate and shared leadership. We	<ol style="list-style-type: none"> <li>1. High-involvement work systems</li> <li>2. Involvement climate</li> <li>3. Shared leadership</li> </ol>

					argue that when employees are placed in an autonomous work environment underpinned by HIWS, they will be more likely to be involved in creative activities and engage in mutual influence behaviors in their work teams, and lead each other to achieve a higher level of creativity.	
152	Han, S. J., Chae, C., Macko, P., Park, W., & Beyerlein, M. (2017).	How virtual team leaders cope with creativity challenges.	European Journal of Training and Development	Qualitative/Interviews	This research uncovered distrust, personality differences, generational differences in views, scheduling issues and technology difficulties as the top five inhibitors for virtual team creativity and success. The authors identified seven main strategies for developing virtual team creativity and success. The authors found that building “team norms” and guidelines to encourage positive interactions between team members can facilitate team creativity. In addition, a concept of trust-based open communication was identified as one of the important strategies when teams actively use technology-mediated communication tools.	
153	Sun, X., Jie, Y., Wang, Y., Xue, G., & Liu, Y. (2016).	Shared leadership improves team novelty: the mechanism and its boundary condition	Frontiers in psychology	Quantitative	Previous research has revealed the significant impact of shared leadership on team creativity, yet the mechanism underlying this relationship has rarely been investigated. The current research examined how shared leadership influenced team creativity (novelty and usefulness) across 3 studies using both long-term project teams and temporal task teams in the laboratory. The results showed that shared leadership enhanced the novelty dimension of team creativity by improving constructive controversy. Furthermore, team goal orientation moderated this effect. The indirect effect of constructive controversy holds for teams with learning goal orientation	1. Shared leadership

					but not for those with performance goal orientation. Such patterns were not found in the usefulness dimension of team creativity.	
154	Sung, S. Y., & Choi, J. N. (2019).	Effects of diversity on knowledge sharing and creativity of work teams: status differential among members as a facilitator.	Human Performance	Quantitative/Surveys	We investigated a plausible intermediate process and a boundary condition that elaborates the diversity–team creativity relationship to address mixed findings on the relationship between diversity and creativity. Our analysis using multi-source data collected from 128 work groups showed that age diversity and functional background diversity had negative and positive effects, respectively, on knowledge sharing and subsequent team creativity. Moreover, the effects of the four diversity attributes (age, gender, functional background, and tenure) on knowledge sharing were all negative in groups with low status differential, whereas the same effects became significantly positive in groups with high status differential. This study demonstrates a mechanism through which group diversity facilitates team creativity based on the information processing view of diversity and the functional approach to social status.	<ol style="list-style-type: none"> <li>1. Group diversity</li> <li>2. Status differential</li> <li>3. Knowledge sharing</li> </ol>
155	Sung, S. Y., & Choi, J. N. (2021).	Leader status behaviors and team creativity: The role of collective interactions and status conflict among members.	Journal of Organizational Behavior	Quantitative/Surveys	By integrating the leadership and status literature, this study explores the intervening mechanisms through which different forms of leader status-claiming behaviors predict team creativity. We propose that leaders' prestige- and dominance-oriented status behaviors are positively related to supportive and coercive interactions among members, respectively, which in turn predict team creativity. Empirical analysis based on the multisource data of 53 work teams confirmed that leader prestige behavior	<ol style="list-style-type: none"> <li>1. Leader prestige and dominance behaviors (leader)</li> <li>2. Supportive and coercive member interactions (members)</li> <li>3. Team status conflict (members)</li> </ol>

					<p>exerted a positive indirect effect on team creativity through increased supportive intermember interaction. The indirect effect of leader prestige behavior was significant only when team status conflict was low. By contrast, leader dominance behavior exhibited a positive effect on coercive intermember interaction, which was not significantly related to team creativity. A post hoc analysis revealed that leader dominance behavior had a negative indirect effect on team creativity through decreased supportive interaction among members. This study provides meaningful theoretical insights into the interactive effects of leader status behaviors and team status conflict that lead to distinct collective group processes and team creative output.</p>	
156	Sung, S. Y., & Choi, J. N. (2021).	Team psychological needs and radical versus incremental creativity of work teams.	Human Performance	Quantitative/Surveys	<p>This study distinguishes between radical and incremental creativity at the team level. In addition, group composition in terms of members' psychological needs is identified as a distinct driver of radical and incremental team creativity. Statistical analysis based on multisource data of 65 work teams shows that (a) team-level need for achievement has a negative main effect on radical team creativity, which disappears in teams with optimistic leaders; (b) team-level need for affiliation has a negative main effect on incremental team creativity, which becomes positive when teams possess high social competence; and (c) team-level need for power is positively related to radical and incremental team creativity. Our analysis demonstrates the multifaceted nature of team creativity and the distinct implications of team-level</p>	<ol style="list-style-type: none"> <li>1. Three dimensions of psychological needs</li> <li>2. Leader optimism</li> <li>3. Team social competence</li> </ol>

					psychological needs for team creativity.	
157	Sung, S. Y., & Choi, J. N. (2012)	Effects of team knowledge management on the creativity and financial performance of organizational teams	Organizational Behavior & Human Decision Processes	Quantitative. 65 sales teams, across 35 branches of a Korean insurance company	The present study investigated the effects of team knowledge management (TKM) on the creativity and financial performance of organizational teams. Our analysis of data collected from 65 sales teams, across 35 branches of a Korean insurance company, showed that team knowledge utilization (but not team knowledge stock) was positively related to team creativity, which in turn predicted team financial performance over the 6-month period. The positive effects of knowledge utilization were stronger when team leaders had a systematic cognitive style and when teams were exposed to high environmental uncertainty. Furthermore, the systematic cognitive style of leaders had a positive main effect on team creativity and positively moderated the relationship between team knowledge stock and team creativity	<ol style="list-style-type: none"> <li>1. Team knowledge stock</li> <li>2. Team knowledge utilization</li> <li>3. Leader intuitive style</li> <li>4. Leader systematic style</li> <li>5. Environmental uncertainty</li> <li>6. Team financial performance</li> </ol>
158	Taggar, S. (2002).	Individual creativity and group ability to utilize individual creative resources: A multilevel model	Academy of Management Journal	Quantitative. Participants were 480 undergraduate business students in a Canadian university's organizational behavior/human resources management course. There were 94 groups ranging in size from five (n = 84) to six (n = 10) individuals on 13 different open-ended tasks.	Behavioral observation scale measures of the components of creativity: 1. Task motivation (dimension: team commitment, focus on the task at hand) 2. Creativity-relevant processes (dimension: preparation, synthesis of the team's ideas, goal setting/strategy to achieve team goals, participation) 3. Team creativity-relevant processes (dimension: team citizenship, performance management, effective communication, involving others, providing feedback, reaction to conflict, addresses conflict, averts conflict)	<ol style="list-style-type: none"> <li>1. Addresses conflict</li> <li>2. Averts conflict</li> <li>3. Effective communication</li> <li>4. Focus on the task at hand</li> <li>5. Goal setting/strategy to achieve team goals</li> <li>6. Individual difference variables. Five personality traits</li> <li>7. Involving others</li> <li>8. Participation</li> <li>9. Performance management</li> <li>10. Preparation</li> <li>11. Providing feedback</li> <li>12. Reaction to conflict</li> <li>13. Synthesis of the team's ideas</li> <li>14. Team citizenship</li> <li>15. Team commitment</li> </ol>

159	Tang, C. (2010).	An empirical study on firm R&D team's creativity: implications from China's hi-tech industries.	Journal of Science and Technology Policy in China	Quantitative/Surveys	The results reveal that, after the effects of leader's empowerment behavior had been controlled, tacit knowledge sharing contributed significantly to the explained variance of team creativity, while the explicate knowledge sharing was not significantly affect the creativity. Thus, tacit knowledge sharing partially mediated the relationship between leader's empowerment behavior and team creativity. The limitations of this study include it just selects the self-report questionnaire to do the data collection, and the samples just come from one company in China.	<ol style="list-style-type: none"> <li>1. Leader's empowerment behavior</li> <li>2. Knowledge sharing</li> </ol>
160	Tang, C. (2019).	Fostering creativity in intercultural and interdisciplinary teams: the victory model.	Frontiers in Psychology	Conceptual paper	The VICTORY model of team creativity. Conceptual paper	<ol style="list-style-type: none"> <li>1. Vision</li> <li>2. Ideation</li> <li>3. Combine</li> <li>4. Team</li> <li>5. Openness</li> <li>6. Risk-taking</li> <li>7. Yes I can</li> </ol>
161	Tang, C. Y., Shang, J., Naumann, S. E., & von Zedtwitz, M. (2014).	How team identification and expertise identification affect R&D employees' creativity.	Creativity and Innovation Management	Quantitative/Surveys. 30 R&D teams.	Based on 120 paired sample survey data of 30 R&D teams, we show that knowledge sharing mediates the relationship between team identification (but not expertise identification) and R&D team members' creativity.	<ol style="list-style-type: none"> <li>1. Expertise Identification</li> <li>2. Knowledge sharing</li> <li>3. Team identification</li> </ol>
162	Tang, C., & Naumann, S. E. (2016).	Team diversity, mood, and team creativity: The role of team knowledge sharing in Chinese R & D teams.	Journal of Management and Organization	Quantitative/Surveys. 47 R&D teams from 17 research institutes in China.	Survey participants included 458 employees working in 47 R&D teams from 17 research institutes in China. The interaction of team work value diversity and team positive mood positively affected team creativity and was mediated by team knowledge sharing. Our findings suggest that knowledge sharing and positive mood are necessary to facilitate the positive link between value diversity and	<ol style="list-style-type: none"> <li>1. Informational diversity</li> <li>2. Knowledge sharing</li> <li>3. Positive mood</li> <li>4. Work value diversity</li> </ol>

					creativity; otherwise, diversity can have negative effects on creativity. Thus, value diversity, mood, and knowledge sharing should be considered in the formation, training, and performance evaluation of teams.	
163	Tiwana, A., & McLean, E. R. (2005).	Expertise integration and creativity in information systems development.	Journal of management information systems	Quantitative/Surveys	This paper addresses the understudied issue of how individually held expertise in information systems development (ISD) teams results in creativity at the team level during the development process. We develop the idea that team creativity results primarily from integration of individually held expertise of team members at the team level. We further propose the quality of intrateam relationships and knowledge complementarities that align the work of individual team members at the project level influence creativity primarily through the process of expertise integration.	<ol style="list-style-type: none"> <li>1. Expertise integration</li> <li>2. Expertise heterogeneity</li> <li>3. Relational capital</li> <li>4. Absorptive capacity</li> </ol>
164	To, M. L., Fisher, C. D., Ashkanasy, N. M., & Zhou, J. (2021).	Feeling differently, creating together: Affect heterogeneity and creativity in project teams.	Journal of Organizational Behavior	Experimental study	Varying levels of affect heterogeneity are inescapable in teams. Sometimes members will feel similarly; at other times they will feel differently than each other. In the latter case, dual-tuning effects should cause them to seek different information and apply different processing styles to that information. This opens the possibility of enhanced creativity via dual-tuning effects as a greater range of information and perspectives is potentially available to the team. Capitalizing on this potential depends on the effective exchange and elaboration of information and perspectives, which is more likely when a team has a well-developed TMS to legitimize and coordinate diverse member inputs. We have shown that affect heterogeneity	<ol style="list-style-type: none"> <li>1. Transactive memory system</li> <li>2. Weekly information exchange and elaboration</li> <li>3. Weekly team affect heterogeneity</li> </ol>

					predicts concurrent information exchange and elaboration (in the presence of a well-developed TMS) and hence creativity.	
165	Toader, A. F., & Kessler, T. (2018).	Team Mental Models, Team Goal Orientations, and Information Elaboration, Predicting Team Creative Performance	Creativity Research Journal	Experimental study	We hypothesized that teams that develop dissimilar team mental models, compared to similar and complementary team mental models, will achieve a higher information elaboration. This effect will be moderated by the development of a high learning-performance team goal orientation. Information elaboration in turn was hypothesized to predict team creative performance. In a 3 (similar/dissimilar/complementary team mental models) × 3 (learning/performance/learning-performance goal orientation) experimental study on a sample of 33 teams (N = 98) we found that teams that developed more dissimilar team mental models and experienced a learning-performance goal orientation intervention engaged in more information elaboration. Information elaboration, in turn, mediated the relationship between the interaction between team mental models and team goal orientations and team creative performance.	1. Team mental models 2. Team goal orientation 3. Information Elaboration
166	Triandis, H. C., Bass, A. R., Ewen, R. B., & Mikesell, E. H. (1963).	Team creativity as a function of the creativity of the members.	Journal of Applied Psychology	Experimental study	The relationship between team performance and individual abilities was studied with creative tasks. Data from 3 experiments are presented which indicate that the conclusions of other investigators, who used manual dexterity and cognitive tasks, can be applied to creative tasks. Up to about 70% of the variance in dyadic creativity may be predicted from the individual creative abilities of the 2 members. Multiple correlations for the prediction of group performance from	Divergent thinking & Convergent thinking



					the knowledge of the abilities of the members did not improve when the interaction between the ability scores was considered. In 1 experiment, in which the procedure permitted the determination of the relative "dominance" of the 2 Ss, the correlations of the abilities of the dominant Ss with group performance were higher than the correlations of the abilities of nondominant Ss with group performance. The study is a 1st step towards the determination of the relationship of group and individual performance in groups composed of more than 2 individuals	
167	Tripathi, N., & Ghosh, V. (2020).	Deep-level diversity and workgroup creativity: The role of creativity climate.	Journal of Indian Business Research	Experimental study	Findings – Results indicated that deep-level homogeneous group perceived higher team creative output as compared to the deep-level heterogeneous group. Perceived team creativity climate was found to mediate the effect of team diversity on team's creative output. Further, it was observed that the quality of perceived creativity climate (positive and negative) moderated the relationship between diversity and team's creative output.	1. Team climate of creativity 2. Deep-level diversity
168	Tsai, W. C., Chi, N. W., Grandey, A. A., & Fung, S. C. (2012).	Positive group affective tone and team creativity: Negative group affective tone and team trust as boundary conditions	Journal of Organizational Behavior	Quantitative/Surveys. 68 R&D teams (members N=270) from 20 high-technology firms (located in northern and middle Taiwan) in the following industries comprised the sample: computer systems (N=3), electronic communications (N=5), optoelectronics (N=4), semiconductors (N=5), and IC design (N=3).	It found that PGAT was beneficial for team creativity only when team trust was low; when trust was high, PGAT had a negative relationship with team creativity. In accord with the "dual-tuning" perspective, the positive effect of PGAT on creativity was present only when team trust was low but negative group affective tone was high.	1. Positive and negative group affective tones 2. Team trust

169	Tu, C. (2009).	A multilevel investigation of factors influencing creativity in NPD teams	Industrial Marketing Management	Quantitative/Surveys. The data collected comprise 343 sets of responses involving 106 NPD teams drawn from high-technology firms.	Building on the mood-as-input model, this study examines how contextual factors (organizational support and organizational control) moderate the relationship between team affective tone and team creativity. The data collected comprise 343 sets of responses involving 106 NPD teams drawn from high-technology firms. The results of this study show that negative affective tone relates positively to team creativity when organizational support is high and organizational control is low, but the linkage between positive affective tone and team creativity as moderated by context factors is found to be insignificant.	<ol style="list-style-type: none"> <li>1. Organizational support and control</li> <li>2. Positive and negative affective tone</li> </ol>
170	Tu, Y., Lu, X., Choi, J. N., & Guo, W. (2019).	Ethical Leadership and Team-Level Creativity: Mediation of Psychological Safety Climate and Moderation of Supervisor Support for Creativity	Journal of Business Ethic	Quantitative/Surveys. 230 members of 44 knowledge work teams from Chinese organizations.	The results, based on 230 members of 44 knowledge work teams from Chinese organizations, showed that ethical leadership was positively related to team creativity and average of member creativity but was negatively related to dispersion of member creativity. Consistent with the predictions of uncertainty reduction theory, psychological safety climate mediated the relationship between ethical leadership and the three forms of team-level creativity. Furthermore, supervisor support for creativity positively moderated the effect of ethical leadership on psychological safety climate and the indirect effects of ethical leadership on the three forms of team-level creativity through psychological safety climate.	<ol style="list-style-type: none"> <li>1. Ethical Leadership</li> <li>2. Psychological Safety Climate</li> <li>3. Supervisor Support for Creativity</li> </ol>
171	Lenka, U., & Gupta, M. (2020).	An empirical investigation of innovation process in	European Journal of Innovation Management	Quantitative/Surveys	Findings of the study reveal that members' proactive personality, emotional intelligence and trust enhance members' learning ability	<ol style="list-style-type: none"> <li>1. Resonant leadership</li> <li>Vision</li> <li>Compassion</li> <li>Positive mood</li> </ol>

		Indian pharmaceutical companies.			called task reflexivity. This learning is further promulgated with the intervention of team information sharing process and support for innovation. Team creativity enhances innovation implementation in organizations. However, resonant leadership style of team leaders does not support task reflexivity.	<ul style="list-style-type: none"> <li>2. Proactive personality</li> <li>Openness</li> <li>Extraversion</li> <li>Need for achievement</li> <li>3. Emotional intelligence</li> <li>Awareness of emotions</li> <li>Management of emotions</li> <li>4. Trust</li> <li>Cognitive trust</li> <li>Affective trust</li> <li>5. Task reflexivity</li> <li>Reflection</li> <li>Planning</li> <li>Action/Adaptation</li> <li>6. Team information sharing process</li> <li>Information processing</li> <li>Knowledge sharing</li> <li>Collaborative problem solving</li> <li>7. Climate for innovation</li> <li>Support for innovation</li> <li>Intrapreneurship</li> </ul>
172	Van Dijk, D., Kark, R., Matta, F., & Johnson, R. E. (2021).	Collective aspirations: Collective regulatory focus as a mediator between transformational and transactional leadership and team creativity.	<i>Journal of Business and Psychology</i>	Experimental study	We conducted two studies. An experimental team-level study of 54 teams ( $n = 157$ ) and a survey study conducted among employees who work in teams ( $n = 141$ ). Team-level analysis of study 1 reveals that CRF and team initiative mediate the effect of leadership and team members' chronic regulatory focus on creative performance. In addition, collective promotion moderates the negative effects of collective prevention on both team initiative and creativity. Study 2 confirms the relationships between leadership styles, team CRF, and team initiative with employees at the individual level. Understanding the collective mechanisms that enable transformational leadership to foster team creativity contributes to the ability of organizations and managers to increase the creativity of team	<ul style="list-style-type: none"> <li>1. Avg team chronic Promotion focus</li> <li>2. Leader behavior (Transformational VS Transactional)</li> <li>3. Avg team chronic Prevention focus</li> <li>4. Promotion collective regulatory focus</li> </ul>

					production by influencing team dynamics. This study expands our knowledge on leader–follower dynamics at the team level and on the ability of these dynamics to shape team creativity. It also expands our knowledge on the emergence of regulatory focus at the team-level and its potential antecedents.	
173	Wang, X.-H., Kim, T.-Y., & Lee, D.-R. (2016).	Cognitive diversity and team creativity: Effects of team intrinsic motivation and transformational leadership.	Journal of Business Research	Quantitative/Surveys. They collected data from 62 R&D teams in 14 organizations in South Korea, including three pharmaceutical companies, six electronic companies, one chemical company, one information technology company, and three manufacturing companies.	They theorized and tested an integrated model for the relationship between cognitive diversity and team creativity. This model involves team intrinsic motivation as a mediator and transformational leadership as a moderator. The Hierarchical Linear Modeling results using 62 teams revealed that transformational leadership moderated cognitive diversity's direct effect on team intrinsic motivation and indirect effect on team creativity via team intrinsic motivation, such that the effects were positive when transformational leadership was high, but negative when transformational leadership was low.	<ol style="list-style-type: none"> <li>1. Cognitive diversity</li> <li>2. Transformational leadership</li> <li>3. Team intrinsic motivation</li> </ol>
174	Wang, L., Wu, Y., Liu, C., & Wan, Y. (2021).	Leaders' positive and implicit followership theory and team creativity in a university scientific research team.	Social Behavior and Personality: An international journal	Quantitative/Surveys	The promotion of team creativity has recently become a focus in leadership research. From the perspectives of the input–process–output model and social cognitive theory, we explored leaders' positive and implicit followership theory (LPIFT) and examined team creativity, with 417 paired postgraduate and supervisor participants from a university scientific research team. Results show that LPIFT had a significant positive impact on team creativity, and that team trust (cognitive and emotional) mediated this relationship. Further, team empowerment climate positively moderated both the relationship	<ol style="list-style-type: none"> <li>1. Leaders' Positive and Implicit Followership Theory in a University Scientific Research Team</li> <li>2. Team Trust</li> <li>3. Team Empowerment Climate</li> </ol>

					between LPIFT and team trust (cognitive and emotional) and the mediating role of team trust (cognitive and emotional).	
175	Wang, J., Cheng, G. H. L., Chen, T., & Leung, K. (2019).	Team creativity/innovation in culturally diverse teams: A meta-analysis	Journal of Organizational Behavior	Meta-analysis	This meta-analysis investigates the direction and strength of the relationship between diversity in culturally diverse teams and team creativity/innovation. We distinguish the effects of two diversity levels (i.e., surface level vs. deep level) in culturally diverse teams and examine the moderators suggested by the socio-technical systems framework (i.e., team virtuality and task characteristics in terms of task interdependence, complexity, and intellectiveness). Surface-level diversity in culturally diverse teams is not related to team creativity/innovation, whereas deep-level diversity in culturally diverse teams is positively related to team creativity/innovation. Moreover, surface-level diversity in culturally diverse teams and team creativity/innovation are negatively related for simple tasks but unrelated for complex tasks. Deep-level diversity in culturally diverse teams and team creativity/innovation is positively related for collocated teams and interdependent tasks but unrelated for noncollocated teams and independent tasks.	<ol style="list-style-type: none"> <li>1. Team virtuality</li> <li>2. Task interdependence</li> <li>3. Task complexity</li> <li>4. Task intellectiveness</li> </ol>
176	Wang, X., Li, H., & Yin, H. (2019).	Antecedents and consequences of creativity in teams: When and how leader humility promotes performance via team creativity	The Journal of Creative Behavior	A time-lagged design/Quantitative	The results, based on 230 members of 44 knowledge work teams from Chinese organizations, showed that ethical leadership was positively related to team creativity and average of member creativity but was negatively related to dispersion of member creativity. Consistent with the predictions of uncertainty reduction	<ol style="list-style-type: none"> <li>1. Ethical Leadership</li> <li>2. Psychological Safety Climate</li> <li>3. Supervisor Support for Creativity</li> </ol>

					theory, psychological safety climate mediated the relationship between ethical leadership and the three forms of team-level creativity. Furthermore, supervisor support for creativity positively moderated the effect of ethical leadership on psychological safety climate and the indirect effects of ethical leadership on the three forms of team-level creativity through psychological safety climate.	
177	Wang, J., Kim, H.-R., & Kim, B.-J. (2021).	From Ethical Leadership to Team Creativity: The Mediating Role of Shared Leadership and the Moderating Effect of Leader-Member Exchange Differentiation.	Sustainability	Quantitative/Surveys	Based on role theory, social information processing theory, and allocation preferences theory, this study suggests that shared leadership functions as a critical intermediating mechanism to explain the influence of ethical leadership on team-level creativity. Moreover, the dispersion value of leader-member exchange (LMXD) moderates the influence of ethical leadership on shared leadership. To empirically test our hypotheses, this paper used multisource samples and team-level data with moderated mediation model with PLS-SEM method.	1. Leaders' behaviors
178	Wen, L., Zhou, M., & Lu, Q. (2017).	The influence of leader's creativity on employees' and team creativity: Role of identification with leader	Nankai Business Review International	Quantitative/Surveys. With data that was collected from 229 employees and 32 team leaders in entrepreneurial and R&D teams of China, hierarchical regression is conducted to test the hypotheses at individual and team levels separately	The results show that leader identification plays a different role in moderating the effects of worker-role creativity and manager-role creativity on employees' and team creativity. For the relationships between worker-role creativity and employees' and team creativity, they are positive when leader identification is high and negative when it is low. For the relationships between manager-role creativity and team creativity, it is stronger when leader identification is higher rather than lower.	1. Leader's creativity 2. Employee creativity

179	West, M. A., & Anderson, N. R. (1996).	Innovation in top management teams.	Journal of Applied Psychology	A longitudinal study	<p>A longitudinal study of the functioning of top management teams in 27 hospitals examined relationships between group and organizational factors and team innovation. A model of group inputs, processes, and outputs was used, and it was predicted that group size, resources, team tenure, group processes, and proportion of innovative team members would affect the level and quality of team innovation. The results suggested that group processes best predict the overall level of team innovation, whereas the proportion of innovative team members predicts the rated radicalness of innovations introduced. Resources available to teams do not predict overall team innovation. The quality of team innovation (radicalness, magnitude, and novelty) may be determined primarily by the composition of the team, but overall level of innovation may be more a consequence of the team's characteristic social processes.</p>	<p>Group Composition</p> <ol style="list-style-type: none"> <li>1. Heterogeneity</li> <li>2. Size</li> <li>3. Group Tenure</li> <li>4. Proportion of Innovators</li> <li>5. KSAs of team members</li> <li>6. Task complexity</li> </ol> <p>Organizational context</p> <ol style="list-style-type: none"> <li>7. Climate for innovation</li> <li>8. Support for teamwork</li> <li>9. Resources</li> <li>10. Size</li> </ol> <p>Process</p> <ol style="list-style-type: none"> <li>1. Clarity of and commitment to objectives</li> <li>2. Participation</li> <li>3. Task orientation</li> <li>4. Support for innovation</li> </ol>
180	Woodman, R. W., Sawyer, J. E., & Griffin, R. W. (1993).	Toward a theory of organizational creativity.	The Academy of Management Review	Literature review/Conceptual paper	<p>In this article we develop a theoretical framework for understanding creativity in complex social settings. We define organizational creativity as the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system. The starting point for our theoretical development is provided by the interactionist model of creative behavior developed by Woodman and Schoenfeldt (1989). This model and supporting literature on creative behavior and organizational innovation are used to develop an interactional framework for organizational creativity. The theoretical framework is summarized by three</p>	

					propositions that can effectively guide the development of testable hypotheses.	
181	Wu, C. H., & Wang, Z. (2015).	How transformational leadership shapes team proactivity: The mediating role of positive affective tone and the moderating role of team task variety.	Group Dynamics: Theory, Research, and Practice	Quantitative/Surveys	The authors examine how and when transformational leadership can contribute to team proactivity. Drawing on the affect-as-resources perspective, they propose that transformational leadership will contribute to team proactivity by cultivating positive group affective tone within teams. They further indicate that the function of positive group affective tone in shaping team proactivity will be stronger when team task variety is higher. These hypotheses were supported by results based on 76 teams in the same organization. The results reveal that the mediation effect of positive group affective tone on the association between transformational leadership and team proactivity is stronger when team task variety is high rather than low. This investigation contributes to the literature by suggesting how to promote proactivity at a team level.	<ol style="list-style-type: none"> <li>1. Transformational leadership</li> <li>2. Positive group affective tone</li> <li>3. Team proactivity</li> <li>4. Team task variety</li> </ol>
182	Yang, S., & Zhong, Y. (2012)	Analysis of the Factors that Influenced on Team Creativity in Product Conception Design Stage.	Applied Mechanics and Materials	Conceptual paper	A number of factors effect on team creativity; this article mainly focused on the tasks and characteristics of the industrial design team in the stage of conceptual design, analysed factors affect on the design creativity. Analysed from three aspects, including personal factors (the characteristics of personality, thinking model), team organization (team organization system and division of labor) and environmental factor (self environment and social environment).	<ol style="list-style-type: none"> <li>1. Environmental Factor</li> <li>2. Individual Factor</li> <li>3. Team Organization</li> </ol>
183	Yang, J., Liu, H., & Gu, J. (2017).	A multi-level study of servant leadership on creativity: The roles of self-efficacy and power distance.	Leadership & Organization Development Journal	Quantitative/Surveys	From efficacy theory perspective, this paper finds that servant leadership promotes employee creative self-efficacy and team efficacy, which enables the simultaneous promotion of	<ol style="list-style-type: none"> <li>1. Servant leadership</li> <li>2. Creative self-efficacy</li> <li>3. Team efficacy</li> <li>4. Team power distance</li> </ol>



					employee creativity and team creativity. Team power distance also moderates the relationship between servant leadership and team efficacy.	
184	Yaping, Gong, Tae-Yeol, K. I. M., Deog-Ro, L. E. E., Jing, Z. H. U. (2013).	A multilevel model of team goal orientation, information exchange, and creativity	Academy of Management Journal	Quantitative/Surveys	The results indicated that a team learning goal and team performance approach goal were positively related—whereas a team performance avoidance goal was negatively related—to both team creativity and individual creativity through team information exchange. They also found that average individual creativity within a team was positively related to team creativity (going above and beyond the effect of team information exchange) through a supportive climate for creativity.	<ol style="list-style-type: none"> <li>1. Team Goal Orientation</li> <li>2. Team Information Exchange</li> <li>3. Trust relationship with the team leader</li> <li>4. Supportive climate for creativity</li> <li>5. Individual creativity</li> </ol>
185	Ye, Z., Liu, H., Gu, J., & Yang, J. (2020).	Is relationship conflict totally detrimental to team creativity?: Mediating role of team learning and moderating role of transformational leadership.	Current Psychology	Quantitative/Surveys	Relationship conflict had an inverted U-shaped relationship with team creativity, and team learning mediated this relationship. High level transformational leadership was found to alleviate the positive influence of low relationship conflict on team learning and mitigate the negative impact of high relationship conflict on team learning.	<ol style="list-style-type: none"> <li>1. Relationship Conflict</li> <li>2. Transformational Leadership</li> <li>3. Team Learning</li> </ol>
186	Yin, J., Jia, M., Ma, Z., & Liao, G. (2020).	Team leader's conflict management styles and innovation performance in entrepreneurial teams.	International Journal of Conflict Management	Quantitative/Surveys	The results show that a team leader's cooperative CMS has a significant positive impact on TIP and team passion further mediates the relationship between the team leader's CMSs and TIP. The results also show that TEI moderates the relationship between the leader's CMSs and team passion.	<ol style="list-style-type: none"> <li>1. Conflict management styles</li> <li>2. Team passion</li> <li>3. Team emotional intelligence</li> </ol>
187	You, J. W. (2020).	Investigating the effects of achievement goals on team creativity and team achievement in learning communities at a South Korean university.	Higher Education	Quantitative/Surveys	The purpose of this study is to investigate how team goal orientations are related to team creativity and team achievement in collaborative learning contexts with the aim of providing a supportive environment for creative learning. Learning communities were	<ol style="list-style-type: none"> <li>1. Team goal orientations</li> <li>2. Team interaction</li> <li>3. Team achievement</li> </ol>

					<p>chosen for the study because they provide a context for collaborative learning, which is considered a high-impact educational practice. A path model was proposed to test the direct and indirect relationships between team goal orientations (mastery, performance-approach, and performance-avoidance), team interaction, and team learning outcomes (team creativity and team achievement). In particular, based on the literature review, the interactive relationship between the team mastery and team performance-approach goal orientations was included in the model. Data were collected from 589 college students divided into 175 teams who participated in learning communities at a South Korean university; these data were aggregated and analyzed at the team level. The path analysis results indicated that team mastery goal orientation was positively related to increased team interaction and team creativity, and the team performance-approach goal orientation was positively related to team creativity and team achievement. Interestingly, a significant interaction effect between the team mastery and team performance-approach goal orientations on team interaction was revealed. Team interaction was significantly related to team creativity but not to team achievement.</p>	
188	YEH, Y. M., LI, F. C., & LIN, H. Y. (2017).	TEAM-LEVEL ANALYSIS OF STUDENT TEAMS ON CRUCIAL CHARACTERISTIC FACTORS FOR CREATIVITY.	CLEAR International Journal of Research in Commerce & Management	Quantitative	<p>The structural equation modeling (SEM) analyses were also used to show that team-task-required creativity, team time management, and individualistic self-construal benefit team creativity. In addition, team time management and individualistic self-construal mediate the relationship</p>	<ol style="list-style-type: none"> <li>1. Team Individualistic Self-Construal Value Orientation (TISVO)</li> <li>2. Team Time Management (TTM)</li> <li>3. Team-Task-Required Creativity (TTRC)</li> </ol>

					between team-task-required creativity and team creativity.	
189	Yuan, Y., & van Knippenberg, D. (2020).	From member creativity to team creativity? Team information elaboration as moderator of the additive and disjunctive models.	Plos one	Quantitative/Surveys	The two answers that team creativity research has advanced—teams are more creative when their average member creativity is higher (the additive model) and teams are more creative when their most creative member is more creative (the disjunctive model) are straightforward. Surprising, however, is that neither the additive model nor the disjunctive model is consistently supported, begging the question of what moderates the predictive power of these models. We address this question by integrating individual-to-team creativity models with team process research. We propose that team information elaboration is a key moderating variable, such that average member creativity is more positively related to team creativity with higher information elaboration, and the highest member creativity is more positively related to team creativity with lower information elaboration. A multi-source study of 60 sales teams (483 employees) in a Chinese bakery chain supported these hypotheses.	<ol style="list-style-type: none"> <li>1. Average individual creativity and the most creative member's creativity</li> <li>2. Team information elaboration</li> <li>3. Most creative member's advice centrality.</li> </ol>
190	Zhang, W., Sun, S. L., Jiang, Y., & Zhang, W. (2019).	Openness to Experience and Team Creativity: Effects of Knowledge Sharing and Transformational Leadership	Creativity Research Journal	Quantitative/Surveys. Data from 347 members of 53 creative teams in 26 firms.	Analyses of multisource data from 347 members of 53 creative teams in 26 firms reveal the associations between heterogeneity of openness to experience in teams and team creativity (i.e., idea generation and idea development). Further, knowledge sharing mediated the relationships between personality heterogeneity and team creativity. Transformational leadership amplified the relationship between personality heterogeneity and idea development.	<ol style="list-style-type: none"> <li>1. Heterogeneity of experience</li> <li>2. Knowledge sharing</li> <li>3. Transformational leadership</li> </ol>

191	Zhang, Y., Li, G., & Wang, M. (2020).	Designing creative teams from creative members: the role of reward interdependence and knowledge sharing.	Nankai Business Review International	Quantitative/Surveys	<p>This paper aims to extend understanding of how team creative potential translates into team creativity. Drawing on social exchange theories, the authors propose that reward interdependence produce cooperative intra-team interactions, which in turn enables aggregate levels of individual member creativity to translate into team creativity. Further, the authors propose that reward interdependence enhances this link indirectly by motivating collective norms around knowledge sharing.</p> <p>The results indicate that the effect of aggregate member creativity (AMC) on team creativity is moderated by reward interdependence in such a way that when reward interdependence is high, AMC has stronger positive effects on team creativity. Furthermore, knowledge sharing, as motivated by reward interdependence, mediates this moderating effect</p>	<ol style="list-style-type: none"> <li>1. Aggregate Member Creativity</li> <li>2. Reward interdependence</li> <li>3. Knowledge sharing</li> </ol>
192	Zhao, H. (2015).	Leader-member exchange differentiation and team creativity: A moderated mediation study.	Leadership & Organization Development Journal	Quantitative/Surveys. Data from 358 employees and 98 supervisors belonging to 98 teams in a large diversified company with more than 15,000 employees, based in Shanghai, Southeastern China.	Results indicated that the relationship between LMX differentiation and team creativity was mediated by relationship conflict. Moderated mediation analyses further revealed that relationship conflict mediated the relationship between LMX differentiation and team creativity for only those teams with low-TMX median	<ol style="list-style-type: none"> <li>1. LMX differentiation</li> <li>2. Relationship conflict</li> <li>3. TMX</li> </ol>
193	Lyndon, S., Pandey, A., & Navare, A. (2020).	Shared leadership and team creativity	Personnel Review.	Mixed Method approach Data from 44 teams were collected at two different time points.	The study found that cognitive trust positively influences shared leadership. Further, team learning fully mediates the relationship between shared leadership and team creativity. The major themes that emerged from the qualitative study are participant's experiences of shared leadership in team, reasons to exert leadership,	<ol style="list-style-type: none"> <li>1. Shared leadership</li> <li>2. Cognitive trust</li> <li>3. Team learning</li> </ol>

					reasons to accept leadership and consequences of shared leadership.	
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## Appendix B: A-Z Factor Index

### A – Z Factor Index

**The author cut out some criteria that have no reference of definition. Thus, 170 of the original criteria definition or references can be found in this index.**

#### A:

##### Agreeableness

Agreeableness is described as

- 1: Trust
  - 2: Straightforwardness
  - 3: Altruism
  - 4: Modesty
  - 5: Modesty
  - 6: Tender-mindedness
- (Costa & McCrae, 1992, p.345).

##### Affective presence

Affective presence is a novel personality construct recently described in psychological research, which describes the tendency of individuals to make their interaction partners feel similarly positive or negative (Eisenkraft & Elfenbein, 2010, p.505).

##### Absorptive capacity

Absorptive capacity, which is defined as a dynamic organizational capability to value, assimilate, and apply new knowledge (Cohen & Levinthal, 1990, p.131).

#### B:

##### Background Diversity

Background diversity describes non-task-related differences such as age, gender, or ethnicity (Pelled, Eisenhardt, & Xin, 1999, p.1)

##### Bureaucratic practices

Bureaucratic structure” consists of a formalized set of role expectations that specifies who is expected to do what, how, and when. In this sense, the bureaucratic structure is a normative structure that is analytically disconnected from decision behavior or process (Scott, 1981).

##### Backup and Support

Backup behavior is defined as one member of the team helping another member obtain the goals defined by his role and tasks, when it is clear that without this help those goals will not be attained (McIntyre & Salas, 1995). Team support for innovation includes not only backup behaviors, but also the: “expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment” (West, 1990, p. 315).

#### C:

##### Conscientiousness

Conscientiousness is defined as

- 1: Competence
- 2: Order
- 3: Dutifulness

4: Achievement striving

5: Self-discipline

6: Deliberation

(Costa & McCrae, 1992, p.345)

##### Creative self-efficacy

Creative self-efficacy refers to the belief that one has the ability to produce creative outcomes (Tierney & Farmer, 2002, p.1138).

##### Creative styles

Creativity Style is the extent to which one prefers structure. Creativity Level is the power at which we are operative. According to Kirton, people cannot and do not want to change their fundamental and stable, preferred style of behavior. He states that one can behave in most any style, but there tends to be one preferred style. (The Kirton Adaption-Innovation Inventory) (Keller, 1978).

##### Creative Personality

Gough’s Creative Personality Scale The Gough is a self-assessment for creativity on personality characteristics in which the test taker is required to check off characteristic that apply to him/herself (Gough, 1979).

##### Cognitive Style and Personality

Cognitive style or thinking style is a concept used in cognitive psychology to describe the way individuals think, perceive and remember information. Cognitive style differs from cognitive ability (or level), the latter being measured by aptitude tests or so-called intelligence tests. There is controversy over the exact meaning of the term "cognitive style" and whether it is a single or multiple dimension of human personality (Kirton, 2003).

**Cognitive diversity**

is a forum of diversity, which reflects the variation in beliefs (regarding cause-effect relationships) and variation in preferences (regarding individual, team and organizational goals) among members (Miller, 1998, p.41).

**Climate for excellence**

Climate for excellence consists of shared group norms about “excellence of quality of task performance” (West, 1990, p. 313)

**Climate for inclusion**

the team climate for inclusion consisted of three facets: equitable employment practices, integration of differences, and inclusion in decision making. Equitable employment practices refer to fairly implemented employment practices that ensure a level playing field in a work-unit. Integration of differences reflects the efforts of a work-unit to involve diverse employees in the mission and task of this unit with respect to their individual talents. Inclusion in decision-making concerns the active seeking and integration of diverse perspectives that employees bring to the team, even if those ideas might upset dominant assumptions (Nishii, 2013, p.1756).

**Collaborative climate**

Intrateam collaborative climate describes the shared perception among team members that interpersonal collaboration is descriptive of the team (Younis, Raghda, 2019, p.2099).

**Cultural intelligence**

Cultural intelligence represents an individual’s ability to deal effectively with situations characterized by culturally diverse settings and with people from a culturally diverse environment (Earley & Ang, 2003).

**Collaborative culture**

is a team's shared values and beliefs about the organizations' support for adaptability, open communication and encouragement of respect, teamwork, risk taking and diversity (Lopez, Peon & Ordas, 2004, p.95-96).

**Coworker support**

As noted earlier, previous research suggests that supportive behavior on the part of others in a workplace (such as, coworkers and supervisors) enhances employees' creativity (Amabile et al., 1996; Oldham & Cummings, 1996). For example, Frese, Teng, and Wijnen (1999) showed that the more supervisors were encouraging of employees, the more creative ideas they submitted to an organization's suggestion program. Oldham and Cummings (1996) demonstrated that supportive supervision made a significant contribution to the number of patent disclosures employees wrote over a two-year period. Thus, we expected that the more employees' supervisors and coworkers offer support for creativity, the higher employees' creative performance will be. (Madjar, 2002, p.758)

**Conflict management**

Conflict management concerns ‘the team dealing with disagreement or dissent’. Somech, Desivilya, and Lidogoster (2009) discern two types of team conflict management: cooperative conflict management – a win-win, solution-oriented collaborative style – or competitive conflict management – a win-lose, competing and controlling style. Rousseau (2006) refers to integrative conflict management as a conflict management style where the team integrates the different perspectives or opinions and resolves the friction or conflict while doing so. Effective conflict management avoids conflict escalation and has a positive effect on team creativity and effectiveness (Somech, Desivilya, and Lidogoster 2009, p.361-362).

**Competition**

Competition is highest when the performance of others is equal or slightly superior and should hence motivate people to increase their own performance (Munkes, & Diehl, 2003, p.307).

**Communication**

Communication refers to the discussion, development or evaluation of new ideas or approaches to technical problems, technical or scientific help or advice and/or the distribution of scientific or technical information. In the literature, this kind of communication has been labelled problem-solving communication and has been shown to be the predominant type of communication in innovation teams (Kratzer, 2004, p.64).

**Collaboration**

Collaboration is defined as the “as an evolving process whereby two or more social entities actively and reciprocally engage in joint activities aimed at achieving at least one shared goal” (Bedwell et al. 2012, p. 130).

**Convergent thinking**

Convergent thinking is the type of thinking that focuses on coming up with the single, well-established answer to a problem. It is oriented toward deriving the single best, or most often correct answer to a question (Cropley, 2006, p.391).

**Creative problem solving processes**

Creative problem-solving (CPS) is the mental process of searching for an original and previously unknown solution to a problem. To qualify, the solution must be novel and reached independently (Osborn, 2012).

**Collective efficacy**

Collective efficacy is a sense of collective competence shared among team members with respect to

responding to specific situational demands and allocating, coordinating, and integrating their resources. Collective efficacy has been defined as a direct extension of self-efficacy to a unit larger than the individual. (Zaccaro, Blair, Peterson, & Zazanis, 1995, p.308).

#### **Creative autonomy**

Refers to the independence in behavior exerted in experimenting with new ideas by the people in the organization. People are given the freedom to use some of their time for elaborating new ideas. In a high autonomy situation, possibilities exist to discuss and test impulses and fresh suggestions that are not planned or included in the task assignment (Swinnen, 2019, p.29).

#### **Constructive controversy**

Constructive controversy is defined as open-minded discussion of opposing perspectives for mutual benefit. The following are key components of constructive controversy: frankly expressing one's personal opinions, feeling uncertain instead of defensiveness about one's own positions, feeling eager to know and comprehend the opponent's arguments, viewing a situation or understanding of a concept from an alternate point-of-view, taking new and opposing information seriously, incorporating the arguments of the opponents into one's own ideas, and creating alternative solutions based on the more complete set of information (Tjosvold et al., 2014).

#### **Cooperative group norms**

Cooperative group norms are defined as norms that emphasize shared objectives, mutual interests, and commonalities among members (Chatman & Flynn, 2001, p.956).

#### **Conformity value**

Conformity refers to the act of changing one's behavior to match the responses of others (Cialdini, and Goldstein, 2004, p.606).

#### **Challenge and involvement**

The degree to which people are involved in daily operations, long-term goals, and visions. High levels mean that people are intrinsically motivated and committed to making contributions to the success of the organization. People find joy and meaningfulness in their work, and therefore, they invest much energy (Swinnen., 2019, p.29).

#### **D:**

#### **Demographic diversity**

Demographic diversity refers to the degree to which a working unit is heterogeneous regarding demographic attributes. It generally includes immutable characteristics such as age, gender, and ethnicity (Pelled, Eisenhardt, & Xin, 1999, p.1).

#### **Directive leadership**

Directive leadership, which is defined as providing the team members with a framework for decision making and action in alignment with the superior's vision (Sagie, 1997).

#### **Developmental feedback**

Developmental feedback refers to the extent to which supervisors or managers provide employees with useful information that enables the employees to learn, develop and improve on the job (Zhou, 2003, p.415).

#### **Divergent thinking**

Divergent thinking describes the processes that individuals use to generate new ideas and is a combination of cognitive processes adopted by

individuals to produce many and varied ideas. (Acar and Runco, 2012, p.117).

#### **E:**

#### **Extraversion**

Extraversion has been described as

- 1: Warmth
- 2: Gregariousness
- 3: Assertiveness
- 4: Activity
- 5: Excitement-seeking
- 6: Positive emotions

(Costa & McCrae, 1992, p.345).

#### **Empathy**

Empathy is a cognitive and affective response to the emotion and situation of others (Davis, 1980; Hoffman, 1984).

#### **Education diversity**

Educational specialization heterogeneity refers to the extent to which a team consists of members with different educational specializations (the major field or discipline in which one's highest degree was earned) (Shin & Zhou, 2007, p.1709).

#### **Empowering leadership**

Empowering leader behavior consists of the following five dimensions: leading by example, which reflects a leader's commitment to his or her own work and the work of team members to achieve better performance; coaching, which refers to actions that educate team members and help them become more efficient and self-reliant; participative decision making, which encourages the sharing among team members of ideas and opinions on group decision making; informing, which promotes the company-wide dissemination of information, resulting in team members who are more



likely to understand the compelling mission and expectations of their leader; and showing concern, which indicates the support and fair treatment of subordinates by a team leader (Arnold, Arad, Rhoades, and Drasgow 2000, p.254-255).

#### **Ethical leadership**

Ethical leadership refers to “the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making” (Brown et al. 2005, p. 120).

#### **Environmental dynamism**

Environmental dynamism, defined as the level of environmental instability, change, and uncertainty, such as changes in technologies and fluctuations in supply of materials or product demand (Dess & Beard, 1984, p.56)

#### **Extrinsic motivation**

Extrinsic motivation occurs when employees are able to satisfy their needs indirectly, most importantly through monetary compensation. Money as such does not provide direct utility but serves to acquire desired goods and services, an assumption which is basic to all economic analysis. Extrinsically motivated coordination in firms is achieved by linking employees’ monetary motives to the goals of the firm. The preferred incentive system in economic theory is strict pay for performance (Osterloh et al., 2002, p.64).

#### **Employee information elaboration**

Elaboration is argued to be the core team process underlying diversity’s benefits and is defined as the exchange, discussion, and integration of ideas, knowledge, and insights relevant to the team’s task (van Knippenberg et al., 2004, p.1011).

#### **Expertise identification**

Expertise identification is the extent to which an individual defines him- or herself by that aspect of personal identification associated with expertise in a certain field (Herndon, 2009, p.22-23).

**F:**

#### **Functional diversity**

Team diversity refers to the number of functional areas represented on the team whose members are fully involved in the project. As the number of functional areas represented on the team increases, so does the variety of ideas and perspectives brought to the team. This, in turn, increases the possibility of discovering novel linkages (Milliken and Martins 1996, p.410).

#### **Formalization/ structural integration**

Formalization is defined as the degree to which rules define authority relations, roles, norms, communications, procedures, and sanctions in an organization (Jaworski & Kohli, 1993, p.56)

#### **Fear of evaluation**

Evaluation apprehension or fear of evaluation (i.e. people being worried that others will judge them negatively). Regarding the latter, teams can generate and propose creative ideas freely, emphasizing harmony within the team while trying to eliminate the apprehension of being evaluated (Diehl, & Stroebe, 1987, p.498).

**G:**

#### **Growth need strength**

Growth need strength - an individual's desire to grow and learn in a job (Shalley et al., 2009, p.490).

#### **Goal interdependence**

Goal interdependence refers to the interconnections among group members implied by the type of goal (individual or group) that guides their performance. An individual goal may encourage group members to develop task strategies that maximize individual performance. In this situation, group members may develop a competitive orientation that results in conflict among work group members (Saavedra, Earley, & Van Dyne, 1993, p.63).

#### **Group emotional tone**

George (1990) has proposed group affective tone as a meaningful construct defined as “consistent or homogeneous affective reactions within a group” (George, 1990, p. 108). Group affective tone is composed of two dimensions: positive group affective tone (PGAT) and negative group affective tone (NGAT) (George, 1990, p. 108).

**I:**

#### **Individual creativity**

Individual creativity refers to a single person’s ability to create novel and useful products (Amabile, 1983).

#### **Innovative behavior**

Innovative behavior refers to the subsequent stage of implementing ideas intended to improve procedures, practices, or products (Anderson et al., 2014). Individuals with high innovative behavior actively engage in problem-seeking and -solving processes, such as seeking sponsorship for novel and useful idea and attempting to build a coalition of supporters. They also actualize ideas by producing prototypes, innovation models, or products (Scott & Bruce, 1994, p.582).

**Individual goal orientation**

There are two types of goal orientation. Learning goal orientation refers to the desire to increase one's task competence (Dweck, 1989), whereas performance goal orientation reflects an eagerness "to do well and to be positively evaluated by others" (Phillips & Gully, 1997, p. 794). According to empirical evidence, learning goal orientation is positively related to creativity, whereas performance goal orientation is not a significant predictor of creative performance (Gong et al., 2009; Hirst, Van Knippenberg, & Zhou, 2009).

**Informational diversity**

Informational diversity refers to team members having different levels of knowledge due to their work experience or professional background (Hobman, Bordia, & Gallois, 2004).

**Informational faultline strength**

Informational faultlines are the hypothetical lines that divide a team into several relatively homogeneous knowledge-based subgroups. Based on the combined effects of task-related characteristics, such as functional background and work tenure, informational faultlines provide a wide range of specific types of knowledge, perspectives, and problem-solving approaches (Cooper et al., 2014, p.633).

**Influence-based leadership**

Influence-based leadership is defined by Raven (1965) as "a change in the belief, attitude, or behavior of a person (the target of influence) which results from the action, or presence of another person (the influence agent)."

**Individual skill development**

Individual skill development defined as one's active engagement in developmental activities in order to obtain work-related knowledge and skills to facilitate

long-term competency acquisition and enhancement related to one's work (Noe, 1996).

**Idea support**

The idea-support dimension is referred to as the degree of encouragement and attention given for the consideration of new ideas (Teirlinck, 2019, p.6).

**Intrinsic motivation**

Team intrinsic motivation defined as the extent to which team members enjoy performing a team task for itself and experience the pleasure and satisfaction inherent in the task. According to Amabile's (1996) componential theory of creativity, intrinsic motivation is the motivational mechanism of creativity or creative performance (Amabile, 1998, p.79).

**Information exchange**

Information exchange—the sharing of work-related data, ideas, and knowledge among team members (Johnson, Hollenbeck, Humphrey, Ilgen, Jundt, & Meyer, 2006).

**Information sharing**

Team information sharing (Anderson & West, 1998)—the open flow of thoughts, beliefs, and knowledge within a team, which facilitates the cross-fertilization of ideas that are potentially novel and useful at work

**Idea generation**

Ideation (Idea generation) is the Cognitive and creative process of generating, developing, and communicating new ideas, where an idea is understood as a basic element of thought that can be either visual, concrete, or abstract (Jonson, 2005, p.613).

**Idea evaluation and selection**

Idea evaluation reflects a judgment or assessment of the degree to which an idea or solution is instrumental in

achieving specific desirable outcomes (Kennel, Reiter-Palmon, de Vreede, & de Vreede, 2013, p.631).

**Informal Hierarchy Strength**

Informal hierarchies, defined as naturally developed influence differences between individuals, are considered a universal feature of many groups and teams (Magee, & Galinsky, 2008, p.355).

**Intra-group conflict**

Intra-group conflict is a process that occurs when team members perceive their interests and values to be incongruent with those of other members of the team (Jehn, 1995, p.257-258).

**Improvisation**

Vera and Crossan define improvisation as 'the creative and spontaneous process of trying to achieve an objective in a new way' (2005, 205).

**Interpersonal trust**

Interpersonal trust has cognitive and affective foundations

**1. Affective trust**

is the confidence one places in a team member based on one's feeling of caring and concern illustrated by that co-worker (McAllister, 1995)

**2 Cognitive trust**

is based on one's willingness to rely on a team member's expertise and reliability. As work team, AT and CT increase the ability of team members to work together which implies greater cooperation and information sharing which are expected in turn to lead higher Team performance (McAllister, 1995, p.25-26).

**J:**

**Job relevant diversity**

Job-relevant diversity refers to the heterogeneity of team members with respect to job- or task-related attributes, such as function, profession, education, tenure, knowledge, skills, or expertise (Pelled, Eisenhardt, & Xin, 1999, p.3).

**K:**

**Knowledge acquisition**

Team knowledge acquisition occurs when the team gains knowledge it did not previously have; it involves locating sources of useful knowledge outside the team, transferring new knowledge into the team, and incorporating the new knowledge into the team's behavioral repertoire (Chuang, Jackson, & Jiang, 2016, p.527).

**Knowledge creation**

The SECI model considers knowledge creation as a dynamic process, in which the continuous dialog between tacit and explicit knowledge generates new knowledge and amplifies it across different ontological levels (individual, organizational, inter-organizational). The model stands out because it not only formalizes a theory of knowledge creation based on the epistemological distinction between tacit and explicit knowledge but also offers practical tool for assessing knowledge creation in organizational contexts (Nonaka, 1994).

**Knowledge integration capability**

Knowledge integration is defined as a process to create new architectural knowledge - "a platform for carrying out new product and market combinations" (Boer et al., 1999, p.381) - using different types of component knowledge. According to Boer et al. (1999), knowledge integration depends on an organization's component

knowledge which is associated with products (or services), markets, and production processes. Accordingly, external knowledge search can be viewed as a necessary condition for knowledge integration because searching external knowledge from clients, suppliers, universities, or even competitors can enrich team members' component knowledge which lies at the bottom of the knowledge hierarchy (Boer et al., 1999), thereby providing raw material for knowledge integration.

**Knowledge search**

Search depth is defined as the degree to which search revisits a firm's prior knowledge. Search scope is defined as the degree of new knowledge that is explored (Katila, 2002, p.1184).

**Knowledge spillover (transfer)**

Knowledge spillover or transfer is an exchange of ideas among individuals (Carlino, 2001).

**Knowledge sharing**

Knowledge sharing is an activity through which knowledge (namely, information, skills, or expertise) is exchanged among people, friends, peers, families, communities (for example, Wikipedia), or within or between organizations (Bukowitz, & Williams, 2000).

**Knowledge hiding**

Knowledge hiding refers to attempts to withhold knowledge (e.g., information, ideas, expertise) that others have requested. It involves three related behaviors: playing dumb, evasive hiding, and rationalized hiding (Connelly et al., 2012, p.65).

**Knowledge Stock**

we define team knowledge stock as a combination of task-relevant knowledge and skills possessed by members and the leader within a team. This reflects the content dimension of TKM. Processes related to team

knowledge, such as TMS or team learning, consider the way team knowledge stock is applied to team tasks (Sung & Choi, 2012, p.5).

**L:**

**Learning orientation**

A learning orientation has been defined as a concern for, and dedication to, developing one's competence (Dweck, 1986, p.1040).

**Leader effectiveness**

Effectiveness with regard to leadership refers to the ability of a leader to direct an organization towards the specified objectives in order to reach organizational goals (Adiguzel, 2019, p.132).

**Leader creativity**

Leader creativity refers to the leader's creative personality, that is, high self-esteem, willingness to take risks, and curiosity, and involves the ability to develop novel and useful ideas, come up with original solutions to problems, direct creative strategies, and bring innovation to the work environment (Li, 2019, p.2).

**Leader empowerment**

Empowerment is a supporting method adopted by leaders to promote team creativity, and which encourages members' self-management, confidence, and decision-making participation, thus enhancing their intrinsic creative motives (Chen, 2011, p.541).

**Leader intuitive style**

Individuals with an intuitive problem-solving style analyze a given situation as an overall pattern, using various perspectives; they are not constrained by logic or rules (Scott & Bruce, 1995). Similar to transformational leaders, who use inspirational appeals to challenge the traditional ways of doing things (Gong,

Huang, & Farh, 2009), intuitive leaders may encourage team members to shift their perspectives by freeing them from rules and standards (Sarin & McDermott, 2003).

#### **Leader systematic style**

Individuals with a systematic cognitive style follow clear procedures and precise instructions when performing tasks. Leaders with this style are thus similar to directive leaders, in that they attempt to clearly organize the roles and responsibilities of members (Pearce & Sims, 2002, p.173).

#### **Leader humility**

Humility is an interpersonal trait that embodies three interdependent aspects: (a) willingness to view the self accurately and acknowledge limits, (b) appreciation of others' strengths and contributions, and (c) teachability (Owens et al., 2013, p.1518).

#### **Leader positive affective presence**

Affective presence is a novel personality construct recently described in psychological research), which describes the tendency of individuals to make their interaction partners feel similarly positive or negative (Eisenkraft & Elfenbein, 2010, p.505).

#### **Leader negative affective presence**

Affective presence is a novel personality construct recently described in psychological research (Eisenkraft & Elfenbein, 2010), which describes the tendency of individuals to make their interaction partners feel similarly positive or negative (Eisenkraft & Elfenbein, 2010, p.505).

#### **Leader-Member Exchange (LMX)**

LMX differentiation (the degree to which members working with the same leader differ in terms of their LMX relationship quality with their leader (Zhao, 2015, p.799).

#### **Leadership support for innovation**

Level of perceived leadership support to act innovatively: "Leaders and managers I observe are effective in creating an environment that supports innovation" (Teirlinck, 2019, p.29).

**M:**

#### **Minority dissent**

Minority dissent was defined as instances in which a minority in a group publicly opposed the beliefs, attitudes, ideas, procedures, or policies assumed by the majority of the group (De Dreu, & West, 2001, p.1193).

**N:**

#### **Neuroticism**

Neuroticism has been described as

- 1: Anxiety
  - 2: Angry, Hostility
  - 3: Depression
  - 4: Self-consciousness
  - 5: Impulsiveness
  - 6: Vulnerability
- (Costa & McCrae, 1992, p.345).

#### **Need for cognition**

Need for cognition can be defined as a need to structure relevant situations in meaningful, integrated ways. It is a need to understand and make reasonable the experiential world. "Meaningfulness" and "integration" are individually defined in that they vary with the person's past experience and capacity for such integration. For any given individual different situations will be differentially important for the arousal and satisfaction of the need. In addition, any given situation will have differential importance for the arousal and satisfaction

of the cognition need (Cohen, Stotland, & Wolfe, 1955, p.291).

**O:**

#### **Openness to experience**

Openness to experience is described by adjectives such as O: Openness

- 1: Fantasy
  - 2: Aesthetics
  - 3: Feelings
  - 4: Action
  - 5: Ideas
  - 6: Values
- (Costa & McCrae, 1992, p.345).

#### **Organization strategy/ innovation strategy**

The organization strategy is defined as a set of organization-level integrative management practices that encourage individuals to interact with others to create knowledge, independently of when they are organized to create knowledge (Un & Cuervo-Cazurra, 2004, p.30).

#### **Organizational support and control**

An organizational control system may be defined as a set of mechanisms designed to increase the probability that people will behave in ways that lead to the attainment of organizational objectives (Flamholtz, 1979, p.51).

**P:**

#### **Psychological Capital**

Psychological capital refers to the individual's positive psychological states which can be developed, measured and changed. This means that an individual's motivational inclination can be cumulative and can be developed via positive psychological factors (e.g., hope, resilience, optimism and self-efficacy).

Psychological capital has four characteristics: (1) confidence in one's ability to invest proper effort to accomplish challenging tasks (i.e., self-efficacy), (2) positive attributions regarding current and future misfortunes that one may encounter (i.e., optimism), (3) persistence in order to achieve goals, and continuous progress toward those goals (i.e., hope); and (4) the ability to bounce back even when encountering misfortune, difficulties or frustration during the process of achieving success (i.e., resilience) (Luthans et al. 2007, p.3).

#### **Proactive personality**

Proactive personality refers to individuals' disposition toward engaging in active role orientation, such as initiating change and influencing their environment (Bateman & Crant, 1993, p.105).

#### **Problem-solving style**

Open problem-solving (as opposed to a blaming approach) is the process of openly discussing the error or problem at hand, with the goal of understanding and resolving the problem, and learning from it (Tjosvold, Yu, and Hui 2004). Problem solving involves the open discussion among group members of their error, in order to understand the conditions that led to it. This understanding allows members to improve future performance. Team members honestly examine the incident of undesired effects and develop a comprehensive analysis of the contributors to the error. They share their experience and delve into how they can correct the error and reduce the probability of its recurrence, even though that means admitting their mistakes (Tjosvold, Yu, and Hui 2004, p.1227).

#### **Positive and negative group affective tones**

George (1990) has proposed group affective tone as a meaningful construct defined as "consistent or homogeneous affective reactions within a group" (George, 1990, p. 108). Group affective tone is

composed of two dimensions: positive group affective tone (PGAT) and negative group affective tone (NGAT).

#### **Positive moods**

Positive team moods are thought to create an environment that positively influences knowledge sharing and pro-social behaviors (George & Brief, 1992).

#### **Participative leadership**

Participative leadership style is a positive type of leadership style in which the leader gives employees the opportunity to participate in decision making and problem-solving through encouragement, support and influence (Somech, 2006, p.135).

#### **Perceived learning culture**

The concept of a learning organization culture refers to 'an organization skilled at creating, acquiring and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights' (Garvin, 1993, p. 80).

#### **Project environment**

Project environment refers to the fact that software development consists of many varied organizational and technological elements that are interrelated and that change over time to understand the environment of project (Wang 2012, p.69).

#### **Prior experience in the task: Direct task experience**

Concept of direct task experience is similar to the concept of learning-by-doing found in the learning and product-development literatures (for a recent review of the learning literature see Argote & Todorova, 2007). Participants in the direct experience condition in our studies practice on a task similar and related to the one

that they will be asked to perform as a team (Gino, Argote, Miron-Spektor, Todorova, 2010, p.103)

#### **Prior experience in the task: Indirect task experience**

we define indirect experience as the process in which members gain experience at the task at hand by watching another team practice a similar and related task. We also consider the case of no prior task experience – situations in which team members lack experience relevant to the task at hand (Gino, Argote, Miron-Spektor, Todorova, 2010, p.103).

#### **Presence of creative coworkers**

The presence of creative coworkers (Zhou, 2003) or creative role models is another contextual factor that may influence the sensemaking perspective of a situation and, hence, the engagement in creative behavior.

#### **Planning and organizing**

planning and organizing (e.g., setting goals, developing ways to approach the task) (Eby, Meade, Parisi, & Douthitt, 1999, p.368).

#### **Performance management**

Assigns tasks and roles to team members/Sets time deadlines for achieving tasks (Taggar, 2002, p.321).

#### **Providing feedback**

Criticizes others' contributions (suggestions, ideas, and behavior) without offering alternatives /Says positive things to team members regarding their performance (Taggar, 2002, p.321).

#### **Perspective taking**

Perspective taking is the process of understanding some phenomena from another's vantage point as well as it is the psychological adoption of another person's vantage point. As such, it holds great potential to help

members of a diverse team to make use of their differences in perspectives; given that perspectives differ, taking the perspective of a team member should facilitate the flexible use of multiple perspectives and a reframing of the situation (Hoever et al., 2010, p. 1).

#### **Psychological safety**

Team psychological safety is defined as a shared belief that the team is safe for interpersonal risk taking. For the most part, this belief tends to be tacit taken for granted and not given direct attention either by individuals or by the team as a whole. Although tacit beliefs about interpersonal norms are sometimes explicitly discussed in a team, their being made explicit does not alter the essence of team psychological safety (Edmondson, 1999, p.354).

#### **Participative Safety**

Participative safety is a psychological concept in which “the contingencies are such that involvement in decision-making is motivated and reinforced while occurring in an environment which is perceived as interpersonally non-threatening” (West, 1990, p. 311).

#### **Phase of project team life cycle**

Every group exhibited a distinctive approach to its task as soon as it commenced and stayed with that approach through a period of inertia, which I called phase 1, that lasted until precisely halfway through the group’s allotted duration. Every group then underwent what I called a transition. In a concentrated burst of activity, groups dropped old patterns, reengaged with their outside supervisors, adopted new perspectives on their work, and made dramatic progress. The events that occurred during those transitions shaped, for every group, a new approach to its task. Those new approaches carried groups through a second major phase of inertial activity, called phase 2, as they executed plans created at their transition. Groups made one last shift in their behavior patterns just before their

deadlines, when they launched into a final burst of activity to finish their work. I called this last phase completion. (Gersick, 1989, p. 278).

**Q:**

#### **Quality and support for innovation**

Quality and Support for innovation describes the “expectation, approval and practical support of attempts to introduce new and improved ways of doing things in the work environment” (West, 1990, p. 315).

**R:**

#### **rGaps in Problem Construction**

A representational gap (rGap) which is the phenomenon that occurs when team members’ individual representations are diverse and are not combined into a shared or joint representation (Cronin, & Weingart, 2007).

#### **Risk-Taking**

Risk-Taking, the creative process is an uncertain and uncomfortable process which is prone to various forms of risks, which may be motivational, emotional, cognitive, or economic. To create something new, one needs to step out of the comfort zone, defy the crowds, deviate from the social norms, and get ready for failure (Tang, 2019, p.5).

#### **Risk-taking norms**

Risk-taking norms are group norms that require members to tolerate ambiguity and make decisions with some uncertainty (Isaksen, Lauer, & Ekvall, 1999, p.668).

#### **Relationship Conflict**

Relationship conflict exists when there are interpersonal incompatibilities among group members,

which typically includes tension, animosity, and annoyance among members within a group (Jehn, 1995, p.258).

#### **Reflexivity**

Reflexivity, defined as “the extent to which team members overtly reflect upon the group’s objectives, strategies, and processes and adapt them to current of anticipated endogenous or environmental circumstances” (West, 1996, p. 559).

**S:**

#### **Status conflict**

Status conflicts—defined as disputes over people’s relative status (i.e., respect) positions in their group’s social hierarchy—as a key group process that affects task group performance (Bendersky, & Hays, 2012, p.323).

#### **Shared leadership**

We define shared leadership as an emergent team property that results from the distribution of leadership influence across multiple team members (Carson, Tesluk, & Marrone, 2007, p.1218).

#### **Self-Serving Leadership**

Self-serving leadership refers to any action in which leaders put their own interests above both their team members’ needs and the goals of the entire organization (Camps et al. 2012), such as taking credit for works of their followers, forging a document when this could improve their respective positions while showing little consideration toward their followers (Camps, Decoster, & Stouten, 2012, p.49).

#### **Supervisor support for creativity**

Support for creativity essentially reflects “expectation, approval, and practical support of attempts to introduce

new and improved ways of doing things in the work environment” (West 1990, p. 315).

### **Sub-group Formation of Communication**

The sub-group formation of communication refers to the number of cliques within the team. A clique is defined as a group of at least three team members in which everyone communicates with everyone else at least once daily. The degree of sub-group formation increases with the number of such cliques. The concept of cliques was developed by Luce and Perry (1949).

### **Supportive climate for creativity**

The supportive climate, in turn, enhances collective creative endeavors and heightens team creativity. We test these ideas using R&D teams from high-technology firms. Climate refers to the shared perception of “the events, practices and the kinds of behaviors that get rewarded, supported, and expected in a setting” (Schneider, 1990, p.384).

### **Social cohesion**

Social cohesion is more affective and refers to the strength of interpersonal ties among team members (Hogg, 1992).

### **Shared Mental Models**

(SMM) refer to a common understanding among the team members about relevant task and team aspects of their work (Klimoski & Mohammed, 1994, p.412).

### **Socialization process**

Socialization is a process of sharing experiences (Nonaka 1994). It creates new tacit knowledge from existing tacit knowledge. For example, by observing a colleague the observer can learn through imitation or practice. Typically, the new tacit knowledge is in a form of shared mental models or technical competences.

**T:**

### **Team power distance**

Team power distance is the extent to which most members accept the legitimacy of unequally distributed power in organizations (Hofstede, 1980, p.45).

### **Team cultural diversity**

Cultural diversity can be defined as the differences in various visible attributes, such as gender, age, and race, as well as nonvisible characteristics, such as religion, marital status, and educational level (Cox & Blake, 1991)

### **Task knowledge diversity**

task knowledge diversity and conceptualized this as the degree to which a team’s reservoir of task-relevant knowledge and skills is distributed and specialized among team members (Zhang, Hempel, Han, & Tjosvold, 2007).

### **Team diversity beliefs**

Team diversity beliefs as a “configural unit property” (Klein & Kozlowski, 2000, p. 29), which captures the combination of the individual team members’ attitudes toward diversity at the team level.

### **Team status inequality**

The degree of inequality in status positions among a group of individuals. How individual members engage in team interactions may depend on their relative status, or the social power and resources associated with their status within the team (Park, 2018, p.1612).

### **Task interdependence**

Task interdependence refers to the extent to which team members are dependent on one another to carry out their tasks and perform effectively (Hulsheger et al., 2009, p.1129).

### **Team virtuality**

Team virtuality is concerned with “the degree to which team members do not work in either the same place and/or at the same time” (De Jong, Dirks, & Gillespie, 2016, p. 1136).

### **Transformational leadership**

Transformational leadership behaviors include inspirational motivation, idealized influence, intellectual stimulation, and individualized consideration (Bass, 1985).

### **Team Size**

Team size is determined by the original purpose for the team, the individual expectations for the members of the team, the roles that the team members need to play, the amount of cohesiveness and inter-connectivity optimal for team performance and the functions, activities and overall goals of the team (Moreland, & Levine, 1992).

### **Task Characteristics**

The dimension of task characteristics includes task challenge, self-determination and time tension (Misra, 2011, p.34)

### **Task intellectiveness**

An intellectual task refers to “a group problem or decision for which there exists a demonstrably correct solution within a conceptual system” (Laughlin & Adamopoulos, 1980, p. 941).

### **Task Orientation**

Task orientation, which has also been called climate for excellence (West, 1990), describes “a shared concern with excellence of quality of task performance in relation to shared vision or outcomes” (West, 1990, p. 313).

**Task Complexity**

Task complexity may be described in three different ways: first, it can be treated as a function of objective task characteristics (complexity is intrinsic to the task); second, it can be seen as primarily a psychological experience (complexity comes from the person's cognition), and finally, it can be regarded as an interaction between task and personal characteristics (Campbell, 1988, p.42-43).

**Team-Task-Required Creativity (TTRC)**

When tasks are challenging and require ingenuity, individuals focus their attention and effort on their task, making them more persistent and more likely to consider different alternatives, possibly resulting in creative outcomes and enabling them to overcome challenges (Mathisen, 2011, p.38).

**Team Organization**

The major tasks of team are reasonable division of labor and establishment of consummate system. The divisions of labor mean that some small groups have the ability to complete one or several work of the target task. This independent organization can be a research team, or several people who have independent ability of the technology development (Yang, & Zhong, 2012, p.98).

**Team participation**

According to Anderson and West (1998, p.241), team participation covers three facets of collaboration: information sharing, interaction frequency, and influence over decision-making. It concerns the active and equal participation of all team members in processes like decision-making, idea generation, etc.

**Team self-concordance**

the self-concordance of individuals' goal-systems, that is, the degree to which stated goals express enduring interests and values. Team self-concordance. Sheldon

and Elliot's (1998) eight item scale was adapted to measure the extent to which respondents perceived their job-related performance goals to be concordant with their own motivation. Sheldon and Elliot's (1998) self-concordance model more fully explores value-based intrinsic motivation. Team self-concordance is intrinsically motivating because team members feel that it emanates from choices that reflect both their personal convictions and their true sense of self within the team.

**Team Interaction**

Interaction in team-based learning refers to learners exchanging information and communicating with one another to achieve common goals (You, 2020, p.3).

**Team Formation**

The dimension of team formation includes diversity of members, member flow and external activity (Misra, 2011, p.34).

**Team Membership Change**

Teams may lose members due to retirement, layoffs, or the natural progression of the project. They may gain new members as a result of hiring, organizational restructuring, or the natural progression of the project. Membership change is detrimental to team performance because new members typically lack task-relevant skills, and interfere with the routine of the team because they are not aware of how it functions. However, it has been suggested that membership change, similar to diversity, may be beneficial for creativity, as new members provide access to new information, ideas, and perspectives (Reiter-Palmon, Wigert, de Vreede, 2012, p.299).

**Team Exploitation and Exploration**

Exploration includes things captured by terms such as search, variation, risk taking, experimentation, play, flexibility, discovery, innovation. Exploitation includes

such things as refinement, choice, production, efficiency, selection, implementation, execution (March, 1991, p.71).

**Team creative confidence**

Team creative confidence refers to team members' shared understanding that, given a history of performance, the team as a collective is more effective at creative idea generation than its individual members. Team creative confidence is similar to collective efficacy in that it is analytically narrow — its focus is on the shared understanding that the team is more creative than each member individually (Baer, 2008, p.261).

**Team creative efficacy**

Team creative efficacy refers to team members' shared beliefs in their team's capabilities to generate creative ideas (Shin & Zhou, 2007).

**Team efficacy**

Team efficacy—the “shared belief in [the team's] conjoint capabilities to organize and execute the course of action required to produce given levels of attainment” (Bandura, 1997, p. 447)—is considered a critical construct in understanding training effectiveness.

**Team climate for Innovation**

The Team Climate Inventory (TCI) was administered to all participants in the study (Anderson & West, 1998). team climate for innovation model where four climate elements are proposed as essential for team innovation to occur: (1) clearly defined, shared, valued, and attainable visions, (2) an environment perceived as non-threatening making it safe for team members to present new ideas and improved ways of doing things, (3) a shared concern with excellence of quality of task performance characterized by evaluations, modifications, control systems, and critical appraisal,



and (4) expectation, approval, and practical support of attempts to introduce new and improved ways of doing things.

#### **Team conflict**

Jehn's (1995) seminal work identified three distinct types of team conflict: task conflict (TC), relationship conflict (RC), and process conflict (PC). TC involves perceived differences in opinions and views about the task and is high when members debate incompatible points of view and ideas regarding solutions to the task itself. RC involves perceived interpersonal incompatibilities involving friction and personality clashes and is high when members feel anger, animosity, and resentment toward each other. PC involves perceived incompatibilities in roles, responsibilities, and schedules for task completion and is high when members disagree on plans for proceeding and executing.

#### **Task Conflict**

Task conflict refers to "disagreements among team members about the content of the tasks being performed, including differences in viewpoints, ideas, and opinions" (Jehn, 1995, p. 258).

#### **Team prosocial motivation**

Team prosocial motivation is the shared willingness among team members to expend efforts to benefit others, voluntary (De Dreu, 2006, p.1249).

#### **Team cohesiveness**

Shaw (1981) described cohesion as "the degree to which members of the group are attracted to each other" (p. 213). Team cohesion defined as the extent to which members value their membership in their team, team members become motivated to stay and work in their team, share task focus, feel committed in attaining

the team goals, and derive proud feeling from association with the team.

#### **Team identification**

Team identification refers to the perception of belonging to a group, which helps team members feel their fate is closely linked with that of the team (Mael & Ashforth, 1992, p.104).

#### **Team promotion focus**

Promotion focus refers to an individual's goal-pursuit motivation to approach positive outcomes (Higgins, 1997).

#### **Trust**

Interpersonal trust is a pervasive phenomenon in organizational life. Trust enables people to take risks: "where there is trust there is the feeling that others will not take advantage of me" (Porter et al., 1975, p.497). Trust is based on the expectation that one will find what is expected rather than what is feared. Thus, competence and responsibility are central to understandings of trust (Cook & Wall, 1980). At times an individual's trust in others is centered more on how they make decisions that affect him or her than on how they behave: "Do they consider my interests and welfare?" Finally, trust encompasses not only people's beliefs about others, but also their willingness to use that knowledge as the basis for action (Luhmann, 2018). Combining these ideas yields a definition of interpersonal trust as the extent to which a person is confident in, and willing to act on the basis of, the words, actions, and decisions of another (McAllister, 1995, p.25).

#### **Team emotional intelligence**

Team emotional intelligence is the "ability of a group to develop a set of norms that manage emotional processes" (p.133). These norms facilitate team members collaboration and cohesiveness, behaviors

essential to team effectiveness (Druskat & Wolff, 2001, p. 133).

#### **Team Reflexivity**

Team reflexivity is defined as: "the extent to which group members overtly reflect upon the group's objectives, strategies, and processes and adapt them to current or anticipated endogenous or environmental circumstances" (West, 1996, p. 559).

#### **Team Proactivity**

Team Proactivity refers to team members' anticipatory actions to affect or change oneself or the work environment (Crant, 2000, p.439).

#### **Team goal orientation**

Team goal orientation is defined as a consensus shared by team members about the goals of the team (Bunderson and Sutcliffe, 2003).

#### **Team knowledge utilization**

we propose team knowledge utilization as an overarching construct that indicates the extent to which the pool of available knowledge and expertise is activated and exploited within teams (Sung, 2012, p.5).

#### **Team knowledge sourcing**

Team knowledge sourcing means that team members actively engage in the process of searching for, accessing, transferring, and applying both team knowledge and others' knowledge (Staats et al., 2011). team knowledge sourcing allows team members to reflect on the sourced knowledge and to use it to adjust their understanding of a given problem. They can then create new knowledge that integrates the sourced knowledge with their new understanding of the problem (Staats et al., 2011).

#### **Transactive memory system**

A transactive memory system is a set of individual memory systems in combination with the

communication that takes place between individuals (Wegner, 1987, p.186).

**Team Longevity**

Team members are examined as a function of the length of time the members have worked and shared experiences with one another, i.e., as a function of group longevity (Katz, 1982, p.84).

**Team tenure**

Team tenure was assessed by asking employees to report the number of years and months they had worked on their team (Koopmann, 2014, p.946).

**Time pressure**

Time pressure – defined as either subjectively perceived time pressure or the imposition of a deadline – increases the rate of individual and group performance (Kelly & Karau, 1999).

**Time, need for closure**

Need for Cognitive Closure was defined as a desire for a quick firm answer (any answer) to a question (Kruglanski & Webster, 1996; Webster & Kruglanski, 1998). From this point of view, the term ‘need’ is used to indicate a motivational tendency or a inclination, rather than a material deficit, that is a function of an individual’s analysis of costs and benefits of cognitive closure (or lack of closure) (Kruglanski & Webster, 1996). Need for closure can be situationally induced, and it varies along a continuum ranging from a high need to obtain closure to a strong need to avoid closure. The antecedents of the epistemic motivation towards a non-specific closure can be found in those circumstances that highlight the perceived benefits and de-emphasize the perceived costs of closure. Those contextual factors are, for instance, time pressure, environmental noise, mental fatigue, boredom, or dullness of a cognitive task (Kruglanski, & Webster, 1996, p.264).

**V:**

**Vision**

Vision is an idea of a valued outcome which represents a higher order goal and motivating force at work” (West, 1990, p. 310).

**W:**

**Work-related communication density**

We define team-level communication network density as the average of the network density of all the team members (Jia, 2014).

## Appendix C: Findings for Chapter 5

Table C1

*Frequency of factors that positively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **INPUTS**)*

<b>Frequency of factors that influence team creativity (INPUTS)</b>		
<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Team Composition	113	29
Team Leadership	51	22
Company Culture	17	11
Understand constraints	14	6
Reward Systems	12	6
Good Structure	10	9
Size of team	7	4
Gate Keeper, Time Keeper	4	3
Project Ownership	3	2
Interdependence	1	1
Working Spaces for creative experiment	1	1

Table C2

*Frequency of factors that positively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **MEDIATORS**)*

<b>Frequency of factors that influence team creativity (MEDIATORS)</b>		
<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Team Creative Process	113	28
Motivation	55	22
Psychological Safety	31	17
Synergy/Collaboration	27	11
Team Learning	25	20
Communication	24	14
Top Management Support	21	12
External Interactions	15	11
Relationship with client	13	7
Cohesion	10	7
Shared Mental Models	10	6
Creative Autonomy	9	5
Trust	9	7
Apply New Technology	5	3
Coworker Support	2	2

**Table C3**

*Frequency of factors that positively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **TIME**)*

<b>Frequency of factors that influence team creativity (TIME)</b>		
<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Time Pressure	29	15
High Longevity	2	2

## **1. INPUTS Category (Positive/Enhance)**

### **Team Composition**

Team leaders have identified team composition as the most important category, which comprises subcategories such as team diversity, good team composition, individual creativity, and goal orientation (Table C4).

**Table C4**

*Frequency of factors that influence team creativity mentioned during interviews*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Team Diversity</b>	<b>57</b>	<b>24</b>
<b>Good Team Composition</b>	<b>44</b>	<b>21</b>
<b>Individual Creativity</b>	<b>14</b>	<b>5</b>
<b>Goal Orientation</b>	<b>4</b>	<b>2</b>

(n=33)

### **Subcategory-level 1: Team Diversity**

The subfactors of team diversity are shown in Table C5, followed by the examples of verbatim in Table C6.

Table C5

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Team Diversity</b>	<b>57</b>	<b>24</b>
<b>Subcategory-level 2</b>		
Cross-functional team	16	9
Diversity of skills and know-how	13	9
Diversity of perspectives	7	5
Multidisciplinary team	7	2
Mixing experiences of team members	6	4
Cultural diversity	4	4
Mix of influences and backgrounds	4	3
Different personality	3	2
Bridge the gap of age and knowledge	1	1
Different ages	1	1
Different mindsets	1	1
Multitasking	1	1

(n=33)

Table C6

*Examples of verbatim for Team Composition – Team Diversity*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team composition</b>	<b>Team Diversity</b>	Cross-functional team	<b>Nipaporn:</b> In order to ensure the success of our project, we need to involve all relevant front-line workers. Our project is a <b>cross-functional team</b> that involves many departments working together. We need to bring in not only subordinates but also various related agencies such as caregivers, warehouse purchase clerks, and suppliers to join our project.
		Diversity of skills and know-how	<b>Shane:</b> It was the <b>diversity of our team abilities and our skills</b> that meant because we had skills in all these different areas, it was necessary that that team composition brought to the project and the task a wide variety of thinking, execution, detailing process thought.
		Diversity of perspectives	<b>Boy:</b> If the team has <b>diversity of perspectives</b> , there will be any ideas

			that come out. Then It will be able to bring it back to talk to customers. It is the one that allows us to encourage Team Creativity.
		Multidisciplinary team	<b>Shane:</b> and this was borne out by <b>multi-discipline and multicultural people that we had together working on the team.</b> We had people from Russia, from Europe, from South America, from UK, from America, from Asia. We had a truly <b>multi-discipline team</b> with different ages.
		Mixing experiences of team members	<b>Scott:</b> I think that was the. Naive students or like they weren't constrained by experience and then <b>mixing with experience</b> together.
		Cultural diversity	<b>Hadrien:</b> Well, yeah, you have to compose with different people. They come from different backgrounds. They were coming from different nationalities, right? We had two Czech people, one Italian, me as a French-Swiss, and then working with some freelancers a bit around Europe of another French person, one from the UK. So, there are already <b>cultural differences.</b>
		Mix of influences and backgrounds	<b>Liam:</b> I think a big stimulant was, I think the <b>varying backgrounds.</b> So, like at the time, yes. Our career director at the time South African gentleman that. If a Canadian, then retired and. Like very local ties and more like internationally educated Thai as well. <b>So having that mix of influences and backgrounds</b> I think really, really helped accelerate our understanding of the client and the brand and also understanding of how we translate that into the local market.
		Different personality	<b>Moshi:</b> Is this <b>personality different? It's very different.</b> I tried doing the MBTI personality test for each team member. How does each person have their own characteristics? I have to tell you that they are very different. People who are like people who are good at strategy, plan strategies. Good at solving problems. Different people, different angles, different characters. There will be different perspectives, including the background that he calls life experiences growing up. different, there will be people who are very corporate, they will look at me in one way, starting from the fact that I live

			in other provinces, I will look at another way, how to make it easier for people to access Different people listen to each other. The important thing is that my team is called an openness team. Each person can exchange ideas and ideas with different perspectives. But can be shared together and it will become a product that can be mass produced.
		Bridge the gap of age and knowledge	<b>Ong:</b> ...when I was turning around the company and those 6 people and a lot of new employees coming in, 4 newcomers just joined, this is a problem that I just tried to solve. <b>Better is the gap of age and gap of knowledge.</b> People have been working in the industry for a long time than younger ones who have just come to look for different knowledge. During COVID, we did not find the gap there. It caused problems within the organization. <b>I solved the problem as a bridge to connect old members with new younger members.</b> Now I came to work to form my own team. I came to work under me. I got a customer. We send it to the new team to take care of and tell the seniors that Don't help it, it's learning.
		Different ages	<b>Shane:</b> ...We had a truly multi-discipline team with <b>different ages.</b>
		Different mindsets	<b>Aof:</b> We also have a <b>mindset</b> that we believe that everyone has value and has the greatest ability. If they are different, they are already complementing each other.
		Multitasking	<b>Japan:</b> I think our team is <b>multitasking.</b>

### Subcategory-level 1: Good Team Composition

The subfactors of good team composition are shown in Table C7, followed by the examples of verbatim in Table C8.

Table C7

Frequency of factors that influence team creativity mentioned during interviews

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Good Team Composition</b>	<b>44</b>	<b>21</b>
<b>Subcategory-level 2</b>		
Good refined team composition	14	11
We give right people to the right tasks	9	8
Personality, Get along well with each other	7	4
Openness team	4	4
I hired experts from certain fields to help	2	2
High potential and talented team members	1	1
Same generation	1	1
We are specialized in it	1	1
We see the strengths and weaknesses of each other	1	1
Wolfpack	1	1

(n=33)

Table C8

Examples of verbatim for Team Composition – Good team composition

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team composition</b>	<b>Good team composition</b>	Good refined team composition	<b>Api:</b> These six of people I think are suited to seven or eight brands that we are taking care of because in each campaign we may take around one week to complete all of this. So, <b>in this for the composition, I think, is suited to be right now.</b> But if we can have another person who can help the data team, we can get the data faster and then the timeline may be shorter and shorter.
		We give right people to the right tasks	<b>Pom:</b> We assigned 6 jobs that you said. We are already 6 people. You assign them 6 jobs. Then we see that this person is good at coordinating government affairs. This person is good at international coordination. This person's English is good. Let's see. MOU to end soon, this person, something like this, <b>we assign work</b>



			<b>according to his personality and creativity so that he will not have to change much.</b>
		Personality, Get along well with each other	<b>Pawinee:</b> The existing team is quite able to work and <b>get along well</b> because the new team comes in with a way of working. The people who come in also have a similar organizational culture or work. This one allows us to go quickly.
		Openness team	<b>Chu:</b> Let me define the word that the composition of the team in addition to the team must be <b>open-minded</b> . Each person in the team must have a character, not a <b>full glass of water</b> (openness team), so that diversity, which everyone will have at some point, is different, can be filled. others to have more variety in a glass of water
		I hired experts from certain fields to help	<b>Anthony:</b> Now, what I did was <b>I hired experts in certain fields so that I could use their expertise and their knowledge in certain fields that I didn't have</b> . What I had and what I still have is. Because I have the ideas and I, I see the end product in, in my brain before it even exists. So, I know what I want to achieve and I know what the team has to achieve and I know how the end product has to look, and I know what are the targets and the specifications. And I do not know for every detail how to implement that. <b>And that's where the team comes in.</b>
		High potential and talented team members	<b>Pawinee:</b> <b>I'm lucky to have a high potential and talented team</b> , and it may be that our company has selected it, that is, it is a person with <b>high potential and ability combined with a friendly personality. Get along well and the team is also specialized in different fields, resulting in a very new idea.</b>
		Same generation	<b>Nut:</b> ...Effective. The first one took the previous generation. Really, people do it. <b>But such as better same generation over the age of 20, over 30</b> , something like this. It can be said that there is a light going in the same direction. <b>It will be the driving force. Let the project be a success.</b>
		We are specialized in it	<b>Pawinee:</b> <b>We are specialized in it</b>

		We see the strengths and weaknesses of each other	<b>Pawinee:</b> We work together until <b>we see and understand how we work, seeing each other's strengths and limitations</b> , making us work together easily and effectively.
		Wolfpack	<b>Ong:</b> The work of our company itself, really, we are like lone wolf, 13 employees, all of them are good, so they can come to work alone, <b>but when the wolf goes to hunt prey alone, returns to sleep at night, sleep is a wolfpack... each of them separated to do their own jobs, but came together when there was work...</b>

### Subcategory-level 1: Individual Creativity

The subfactors of individual creativity are shown in Table C9, followed by the examples of verbatim in Table C10.

**Table C9**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Individual Creativity</b>	<b>14</b>	<b>5</b>
<b>Subcategory-level 2</b>		
Individual creativity	13	5
People who face the problem they can think of creativity things	1	1

(n=33)

**Table C10**

*Examples of verbatim for Team Composition – Individual Creativity*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team composition</b>	<b>Individual Creativity</b>	Individual creativity	<b>Anthony:</b> A team is creating and helping a team leader, <b>which is the innovator</b> . This is my experience that the reason why is that, for example, if you look at Thomas Alva Edison, you read about him, do you read about his team members? No, no, no. Of course, he had a team with him that helped him to implement and realize his ideas

			as much as possible. <b>But the ideas and the creativity came from him and not from his Team.</b>
		People who face the problem they can think of creativity things	<b>Ekkachat:</b> The time when we think, this is the person who can, the person who can think creativity like this, must be the <b>person that face the problem...</b>

### Subcategory-level 1: Goal Orientation

The subfactor of goal orientation is shown in Table C11, followed by the examples of verbatim in Table C12.

**Table C11**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Composition</b>	<b>113</b>	<b>29</b>
<b>Subcategory-level 1</b>		
<b>Goal Orientation</b>	<b>4</b>	<b>2</b>
<b>Subcategory-level 2</b>		
Goal orientation	4	2

(n=33)

**Table C12**

*Examples of verbatim for Team Composition – Goal Orientation*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team composition</b>	<b>Goal Orientation</b>	Goal orientation	<b>Nut:</b> The first impulse comes from the <b>goal first</b> , that we have a goal that ... Oh, I want to earn only that much. Therefore, each person has thought before that, hey, when and what to do? In order to get achieve this, we must get the problem first before getting the target...

## Team Leadership

Team leaders have identified team leadership as the second most important category, which comprises subcategories such as leader effectiveness, good team leader, leadership styles, leader support, and strong personality of leader (Table C13).

**Table C13**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leader Effectiveness</b>	<b>19</b>	<b>12</b>
<b>Good team leader</b>	<b>14</b>	<b>6</b>
<b>Leadership Styles</b>	<b>12</b>	<b>9</b>
<b>Leader Support</b>	<b>8</b>	<b>6</b>
<b>Strong personality of leader</b>	<b>3</b>	<b>3</b>

(n=33)

### Subcategory-level 1: Leader Effectiveness

The subfactors of leader effectiveness are shown in Table C14, followed by the examples of verbatim in Table C15.

**Table C14**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leader Effectiveness</b>	<b>19</b>	<b>12</b>
<b>Subcategory-level 2</b>		
Leader must lead and guide team	9	4
Leader has clear vision and direction	4	4
Leader created good/safe environment for member expressing ideas	3	3
It has to lead by One leader as one captain on a ship	2	1
Leader teaches team members to think out of the box	2	1
I was able to lead the team b/c of my knowledge	1	1

Table C15

*Examples of verbatim for Team Leadership – Leader Effectiveness*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Team Leadership	Leader Effectiveness	Leader must lead and guide team	<b>Matthew:</b> Leader gives the guidance for the team. So yeah, like leadership is key. And if the leader doesn't have the experience or the particular interest or knowledge of the project, it won't be as successful as it could be.
		Leader has clear vision and direction	<b>Hadrien:</b> I think it's the most important one. Team structure. Team leadership. Yes. So, this is where there's a collaboration between the producer, the game director and the lead designer and everything are recognizing roles and responsibility, recognizing talent and of course, having a clear vision. If you have a vision, you can lead the team...
		Leader created good/safe environment for member expressing ideas	<b>Liam:</b> We have very similar management styles and we want to make sure that our team feels safe to experiment and push the boundaries and to make mistakes. Because if they don't, then you're leaving a lot of creativity on the table. You need to be able to feel like it's okay to be wrong if you want to try something new.
		It has to lead by One leader as one captain on a ship	<b>Anthony:</b> But. I still am very convinced that there can only be one captain on a ship in in the normal life... A company has to be led by one leader. And in in my experience, I have been the team leader. I have been the innovator. I have been in charge. And if you have multiple people that have multiple ideas, it will only lead to conflicts. And there will only be arguments about how the end goal has to be reached. So in in innovation, in in inventing products. I'm sorry. That could only be that can only be one leader. And of course, I expect a lot of innovation and motivation from the team. But they have to follow. They have to follow the guidelines that I set for them, because otherwise

			<p>it's becoming a mess. So this is this has been my style. The. To motivate and to induce as much creativity in the team as possible with people that. At many times in certain fields knew much more than me. But my big advantage was that I have a broad knowledge of almost everything in in certain areas. And that makes me more how to say more easy to see what was needed. So I hope you understand that that my message here is that, yes, an innovative team and it's absolutely necessary, but they still have to follow orders.</p>
		Leader teaches team members to think out of the box	<p><b>Anthony:</b> And this is what <b>I also taught my team members to think out of the box.</b> You have to you have to be able to how to say to visualize what you want to achieve and how you want to achieve it with the with the components and the knowledge that you have.</p>
		I was able to lead the team b/c of my knowledge	<p><b>Shane:</b> So that's why that team structure, team leadership, it was very much a collaborative process. I wouldn't say that I was any one more head above anything else, but <b>I was able to lead the team because of my knowledge.</b> After 15, 16 years of working with the same client, I could understand them instinctually. Well, so I could give a very, very clear. I would say that the way we use that cascade, the way that we use our international presence.</p>

### Subcategory-level 1: Good team leader

The subfactor of good team leader is shown in Table C16, followed by the examples of verbatim in Table C17.

Table C16

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Good team leader</b>	<b>14</b>	<b>6</b>
<b>Subcategory-level 2</b>		
Good leadership	14	6

(n=33)

Table C17

*Examples of verbatim for Team Leadership – Good team leader*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team Leadership</b>	<b>Good team leader</b>	Good leadership	<p><b>Gordon:</b> And then number two is, I think, how we facilitate. So, for me. Really <b>good. Facilitation means I'm doing almost nothing if I'm if I'm there as a facilitator and I can sit in the back of the room. Drinking a cup of coffee while everybody else is working. That's the best result possible.</b> Because and it's very counterintuitive because a lot of people, especially in my organization, management consultants. They think you need to be up there and you need to be leading everybody all the time telling them what to do. No, no, no, no. Do this. Do this better. Do this better. There's nothing worse to make people feel more intimidated by them, by telling them, no, no, no, no, no. You need to do it like this. Right. So. But that requires structure. So you've got to have really good structure.</p> <p>...And so the way I help people be creative is, is I'm genuinely there to tell them the things that you share with me. The ideas that you share are going to help me as a designer create something great. And I can show them that. I can actually say, Look, this thing you did in the workshop. Here it is. It doesn't it's not the same shape as what you started, but the things that you shared with me helped create this. This output.</p>

### Subcategory-level 1: Leadership Styles

The subfactors of leadership styles are shown in Table C18, followed by the examples of verbatim in Table C19.

**Table C18**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leadership Styles</b>	<b>12</b>	<b>9</b>
<b>Subcategory-level 2</b>		
Situation leader	6	5
Different leadership styles	2	2
Inspirational Leader	2	2
Clear identify leadership	1	1
Leading by example	1	1

(n=33)

**Table C19**

*Examples of verbatim for Team Leadership – Leadership Styles*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team Leadership</b>	<b>Leadership Styles</b>	Situation leader	<b>Noi:</b> The structure of the team, the leadership of the team, I see it as old fashion. It is not, not important, I think that the leader of the team, <b>everyone is a leader, but a leader according to the situation</b> Can you imagine when you coach the team, when he lets him do it, whether it's design thinking, crazy ideas, maybe for him to draw his friend's strengths, which in your workshop will have it, there will be one story that he learns what friends do best. When we mixes the team together, we will begin to notice. This friend is a good talker. This friend is a good PowerPoint maker. This friend is a negotiator. <b>So everyone is a leader in their own talent, so the situation that you lead them to.</b> OK, you're on the same team now, so the team that is set up here will meet each other <b>Situations that must bring each</b>



			<b>person out to match the situation,</b> ...Who must be the leader, so I see that the importance of leadership of the team is <b>a situation leader.</b>
		Different leadership styles	<b>Amadeus:</b> And as a leader, this is something that. This is also something that is very different from culture to culture. I have so my own senior leadership, right, comes from different cultures. <b>They have different leadership styles and. The different leadership styles also affect me a lot. So that's how I feel as a team member also like.</b>
		Inspirational Leader	<b>Matthew:</b> this is on the leaders responsibility is to not only utilize and understand the strengths of their teams, but <b>also inspire the team. So a big part of the leader is to motivate the team through inspirational means and understanding their strengths, and that kind of motivates them to work harder and even like go overtime sometimes...</b>
		Clear identify leadership	<b>J:</b> leadership has to be <b>clearly identified</b>
		Leading by example	<b>Amadeus:</b> And that really comes from also <b>leading by example.</b> So. So it's really. Yeah, allowing people to see what you are doing and that you are also showing this mindset as well.

### Subcategory-level 1: Leader Support

The subfactors of leader support are shown in Table C20, followed by the examples of verbatim in Table C21.

**Table C20**

*Frequency of sub-factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Leader Support</b>	<b>8</b>	<b>6</b>
<b>Subcategory-level 2</b>		
Team can come to see leaders whenever they need	4	3

Our Leader supports workload of the team	3	3
Leader should focus on positive and encouraging members	1	1

(n=33)

**Table C21***Examples of verbatim for Team Leadership – Leader Support*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team Leadership</b>	<b>Leader Support</b>	Team can come to see leaders whenever they need	<b>Hadrien:</b> Yeah, well, definitely this one is super important <b>if you know, it's a place where you can come and knock on the door with the three of us, the three leads are sitting and you can come and ask a question.</b> Ask for a leave because you don't feel good. Ask for an extra, a hard drive because you need more space, or just ask a question because you don't get the vision. Everything that's super important.
		Our Leader supports workload of the team	<b>Api:</b> not only support, but she sometimes you also ask that if it all the campaign still in the time or not? Do you need me to to hold this campaign first? She will, thinking about the team. Not only that, but we also have seven brands. <b>So, seven campaign in a week, for example, but we can have too much workload. She will take taking care of it, but not too much workload.</b> But we can deliver the work to the seven brands and they're happy to to have us like the collaborate team working together.
		Leader should focus on positive and encouraging members	<b>Amadeus:</b> the communication when it comes to judging ideas and judging new initiatives is something from, I think from a <b>leadership position should always be encouraging, so you should always focus on.</b> What was it that this person wanted to achieve with this? They don't put out an idea or a new initiative because. Just because they do it because they think it's an improvement of what is currently being done, <b>so you should always focus then on the positive aspects rather than just shutting ideas down because that's. It's not just it's a negative spiral that just</b>

			<b>blocks everything that comes after that.</b>
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### Subcategory-level 1: Strong personality of leader

The subfactors of Strong personality of leader are shown in Table C22, followed by the examples of verbatim in Table C23.

**Table C22**

*Frequency of sub-factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Leadership</b>	<b>51</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Strong personality of leader</b>	<b>3</b>	<b>3</b>
<b>Subcategory-level 2</b>		
Leader get along with team members	1	1
Leader who compromise	1	1
Mix and match personality of facilitator	1	1
Problem solver type of leader	1	1

(n=33)

**Table C23**

*Examples of verbatim for Team Leadership – Strong personality of leader*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team Leadership</b>	<b>Strong personality of leader</b>	Leader gets along with team members	<b>Jay:</b> I rather focus on leaders. <b>Leaders must be called to win the hearts of the youngsters in the team as well and must have knowledge in solving problems.</b> You will not know everything, must know how to take things around that the team proposes, so it must have a decision, when the team has any problems, <b>feel like you can run to this person, no matter Whether it's a matter of work, personal matters, or then help, help solve that it's not a very smooth team at all.</b>

		Leader who compromises	<b>J:</b> We recruit <b>people with compromise</b> and good communication skills and leadership skills that can clearly link to the work team.
		Mix and match personality of facilitator	<b>Aof:</b> we have a duty to be a facilitator, <b>so we must have the character of a person who can be called mix and match</b> , or people call it pull points, strengths. each one come together.
		Problem solver type of leader	<b>Jay:</b> I rather focus on leaders. Leaders must be called to win the hearts of the youngsters in the team as well and <b>must have knowledge in solving problems</b> . You will not know everything, must know how to take things around that the team proposes, so it must have a decision, when the team has any problems, <b>feel like you can run to this person, no matter Whether it's a matter of work, personal matters, or then help, help solve that it's not a very smooth team at all.</b>

## Company Culture

The subfactors of Company culture are shown in Table C24, followed by the examples of verbatim in Table C25.

**Table C24**

*Frequency of sub-factors that influence team creativity mentioned during interviews  
(Company Culture)*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Company Culture</b>	<b>20</b>	<b>14</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Positive culture at company	7	5
Culture that involves in KPI	3	2
Strong sense of organization	2	2
Thai culture like brothers and sisters	2	2
Coaching culture	1	1
Think out of the box	1	1
We were flexible for everything	1	1

(n=33)

Table C25

Examples of verbatim for Company Culture

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Company Culture	-	Positive culture at company	<b>Amadeus:</b> I think the most important thing is it's the culture that that is being set in in the company. You can. You can have whatever sophisticated tools you want; you can have whatever. These are also maybe shorter initiatives or activities, or I don't believe in that, <b>I believe in a complete culture in the company that is that is positive and that makes people feel comfortable.</b>
		Culture that involve in KPI	<b>J:</b> EPSPiRiT organizational culture have established as part of KPI.
		Strong sense of organization	<b>Nui:</b> If we believe and love the organization, we will do everything to help the organization.
		Thai culture like brothers and sisters	<b>Nut:</b> There is, because with Company's own things, this style in the work of the <b>organization's culture is actually quite helpful, like brothers and sisters.</b>
		Coaching culture	<b>Aof:</b> As I said the next step is to encourage <b>coaching culture.</b> Coaching culture. I was a pilot before. HR used to know ICF International coaching facilitation? so it's will transfer the culture of the coach or mentoring or facilitating to the supervisor, able to encourage employees correctly, changing from telling to listening, giving feedback or what? powerful questions, something like this It will be good enough to go down to the level of doing things about hrd...
		Think out of the box	<b>Pom:</b> My team is quite <b>out of the box thinking.</b> They always think out of the box. When there is a problem, they meet a dead end. they can jump out of the box and have new ideas to present in the the meeting and we will develop together whether we will go this way or not, if not, does anyone have a better suggestion...
		We were flexible for everything	<b>Nui:</b> It brings success into the project and then brings success into the launch. Actually, it's a very big launch, <b>so I think it's that it has to be</b>

			<b>Flexibility all the time in the process work.</b>
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## Understand Constraints

The subfactors of Understand Constraints are shown in Table C26, followed by the examples of verbatim in Table C27.

**Table C26**

*Frequency of sub-factors that influence team creativity mentioned during interviews*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Understand Constraints</b>	<b>14</b>	<b>5</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Understand fixed limitation and think beyond the limit	5	4
Constraints	5	2
A big challenge is we were restricted by legislation, rules Gov	5	1

(n=33)

**Table C27**

*Examples of verbatim for Understand Constraints*

<b>Category</b>	<b>Unified Positive factors (Second-order coding)</b>	<b>First-order coding</b>	<b>Examples of Verbatim</b>
<b>Understand Constraints</b>	-	Understand fixed limitation and think beyond the limit	<b>Pawel:</b> So. I guess to sum up that creative process or methodology, it's <b>understanding that there have to be certain fixed elements</b> on one side, some <b>fixed restraints</b> , and on the other side allowing designers to go or <b>think beyond the restraints to come up with new ideas</b> . Then they can push into those restraints. So it's that balance between restriction and freedom.
		Constraints	<b>Hadrien:</b> The <b>constraints</b> , they said. So, it was it was a painful moment because cash flow was going low, new investor was coming in. So, there was

			<p>a good news. But then suddenly to say, we're going to invest and support you. But these are the conditions.</p> <p><b>Conditions equals constraints, right?</b> And we were a solely independent video game studio and suddenly we need to beg for more money. And with this comes the limitations and we rejected it and then we embraced it. So, <b>I think constraints framing, right, when you frame something, when you limit yourself in this box. You realize you actually have way more space than you thought. So constraints forced us. To re-imagine...</b></p>
		<p>A big challenge is we were restricted by legislation, rules Gov</p>	<p><b>Shane:</b> So, Camel came to us with a big challenge. One, it was a wonderful thing to say that they were 100 years old, but at the same time we couldn't do anything technically in a lot of markets because <b>we were restricted by legislation and by rules and governing bodies...</b> I think the one of the things because <b>it's a restricted category, we had to be more creative</b></p>

## Reward Systems

The subfactors of Reward Systems is shown in Table C28, followed by the examples of verbatim in Table C29.

**Table C28**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Reward Systems</b>	<b>12</b>	<b>6</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Innovation award	12	6

(n=33)

Table C29

*Examples of verbatim for Reward Systems*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Reward Systems	-	Innovation award	<b>Vivan:</b> There will be a company innovation award contest, that is, every employee in the organization can submit whatever you think will be creative, and it can bring about business benefits in the future. <b>We are able to submit an idea to enter the innovation award contest.</b>
			<b>Nina:</b> There's one thing that we've done that has been a finalist for <b>the building of the year award.</b>
			<b>Nine:</b> We will have an event that we give the opportunity to have <b>Company Awards, internal contests</b> , to do any subject, that will come to share or come to a small prize contest, such as 1st place, 3000 baht, 5000 baht, 8000 baht. It will be more fun. Then they present project that is not a routine work. If someone wins an internal contest, then it will be sent to the Company network. <b>If there is an innovation, we call the President awards...</b>

## Good Structure

The subfactors of Good Structure are shown in Table C30, followed by the examples of verbatim in Table C31.

Table C30

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Good Structure</b>	<b>10</b>	<b>9</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Flat structure	3	3
Have a good process framework	3	3
Brand truths	1	1
Good governance and stable	1	1



Not flat structure	1	1
Set the condition	1	1

(n=33)

**Table C31***Examples of verbatim for Good Structure*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Good Structure</b>	-	Flat structure	<b>Ong:</b> The composition of the organizational chart team is a <b>flat structure</b> .
		Have a good process framework	<b>Shane:</b> We had and we always <b>worked around fairly well defined structures of ensuring that there is a strong and understandable strategy in place</b> . First, getting a strong creative brief that was either written or instigated by the client, then supplemented by the agency that I was working with and representing. And then we would then take that on and turn that into internal briefs for the different purposes or the different needs of the brand. If the brand came to us with a wider remit to say we need some ideas for our business or we need to engage better with our customers, we would then look at different briefs depending on, again, what we thought through the strategic rigor that we would put behind the process. We would then start to look at what do we think these needs? It needs. Business to business. It needs trade, communications. It needs consumer. We'd need to be of retail. We need to do direct communications. We need to do digital communications and so on and so on. <b>So, the process was fairly well defined</b> always, and it was always based around brand truths that we had to find or that we had to uncover or that we had to interrogate the client about. Because sometimes you will get clients who come to you who don't know what they want or who haven't done their own homework on themselves. And we would often be asked to do that first to get a good grounding, a good foundation to then take on and turn

			into creative ideas and creative expressions.
		Brand truths	<b>Shane:</b> So, the process was fairly well defined always, <b>and it was always based around brand truths that we had to find or that we had to uncover or that we had to interrogate the client about.</b> Because sometimes you will get clients who come to you who don't know what they want or who haven't done their own homework on themselves. And we would often be asked to do that first to get a good grounding, a good foundation to then take on and turn into creative ideas and creative expressions.
		Good governance and stable	<b>Ekkachat:</b> The context of the organization and the nature of the organization is that there must be a <b>good governance and stability.</b>
		Not flat structure	<b>Hadrien:</b> Not It's not true, <b>it's not flat. There's, there's a top deciding which means that having a responsibility if it fails</b> and so we have the director level, you have the lead level and then you have the staff level.
		Set the condition	<b>Gordon:</b> it's really just <b>you set the condition, you say, here's the structure.</b> It's very easy to understand. Just do it. Don't worry about it. Just do the exercise. And then you stay out of the way and, again, I think the importance of having a designer in that type of role is that. You know, part of what a designer does is make meaning out of things, right? So it's basic like visual synthesis or conceptual synthesis, right? I see a bunch of things together and what a designer does, it says, What's the relationship between these things...

### Size of team

The subfactors of Size of team are shown in Table C32, followed by the examples of verbatim in Table C33.

Table C32

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Size of team</b>	7	4
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Divided Big team into small teams	3	2
Small team can collect all the points of view from everyone	3	2
Smaller team, Stronger bonds with everyone	1	1

Table C33

*Examples of verbatim for Size of team*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Size of team</b>	-	Divided Big team into small teams	<b>Amadeus:</b> In a larger team, you have to create these clear, also <b>smaller teams within the team</b> to take care of certain tasks because sometimes it's just too many.
		Small team can collect all the points of view from everyone	<b>Boy:</b> The composition of the development team, is to <b>keep small first, that is, not allow more than 10 people</b> , the reason is because if more than this, it may not be able to control the quality of generating idea, It's more difficult, so I want to keep a small team mainly a scrum team, so I think that <b>keep small</b> are quite important to team composition.
		Smaller team, Stronger bonds with everyone	<b>Amadeus:</b> That might have been because there wasn't this. <b>When you have a smaller team, you create normally stronger bonds with everyone.</b>

**Gate Keeper, Time Keeper**

The subfactors of Gate Keeper, Time Keeper is shown in Table C34, followed by the examples of verbatim in Table C35.

**Table C34**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
Gate Keeper, Time Keeper	4	3
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Gate Keeper, Time Keeper	4	3

(n=33)

**Table C35**

*Examples of verbatim for Gate Keeper, Time Keeper*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Gate Keeper, Time Keeper	-	Gate Keeper, Time Keeper	<p><b>Hadrien: The producer is the one keeping us in check that we're spending the money that we're delivering on time.</b> We're following the schedule that we have, our agile progress and we can deliver and everything. I don't talk about this that much because I don't really like it, but the truth is that yeah, and I would like maybe to add this to the previous project. The successful one is that when the producer does a tremendous job and the project manager does a tremendous job, then it's everything is so much easier because <b>we as a creative team, the design team can focus on our job instead of having to think about are we on time or are we delayed?</b> Are we spending too much? So, this is a high level of collaboration.</p> <p><b>It's good to have someone that is the gatekeeper, that is the time keeper, budget keeper.</b> And we are responsible for the experience, for the feeling, for the symbolism, for all this stuff...</p>

## Project Ownership

The subfactor of Project ownership is shown in Table C36, followed by the examples of verbatim in Table C37.

**Table C36**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Project Ownership</b>	<b>3</b>	<b>2</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Project ownership	3	2

(n=33)

**Table C37**

*Examples of verbatim for Project Ownership*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Project Ownership</b>	-	Project ownership	<b>Amadeus:</b> But what the team did differently is that. <b>They really took ownership of the project.</b> That's also something that me as a manager feel like when you <b>when you give the complete ownership to someone for a specific project or for a bigger part of a task...</b> When you have clear. Also, responsibilities of what everyone is supposed to provide then. There are clear rules of what they should actually do, and then they know that they can be creative within that space.

## Interdependence

The subfactors of Interdependence is shown in Table C38, followed by the examples of verbatim in Table C39.

Table C38

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Interdependence</b>	<b>1</b>	<b>1</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Task interdependence	1	1

Table C39

*Examples of verbatim for Interdependence*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Interdependence</b>	-	Task interdependence	<b>Api:</b> And, for example, is someone in data team cannot do like don't have the time to export some data. They come back to my team that asked for the help, for example. Could you please running the SQL or whatever tool to export the data? Can you help them? I will check with my team that are they have some free time or not. And <b>then we go to help the team.</b> So, we help to get the two complete one on the job that we should complete, not just only we looked at, oh no, it's the data side that I should complete. They should manage the work and complete. It's not our work. No, we don't think about that. <b>We think about how we can correlation the work. Sometimes it's not. It's not my job to ask for that. It's not my job, for sure. But when we do, we do because we work as the team.</b>

### **Working Spaces for creative experiment**

The subfactor of Working Spaces for creative experiment is shown in Table C40, followed by the examples of verbatim in Table C41.

**Table C40***Frequency of factors that influence team creativity mentioned during interviews*

<b>Positive/Enhance Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Working Spaces for creative experiment</b>	<b>1</b>	<b>1</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Working Spaces for creative experiment	1	1

**(n=33)****Table C41***Examples of verbatim for Working Spaces for creative experiment*

<b>Category</b>	<b>Unified Positive factors (Second-order coding)</b>	<b>First-order coding</b>	<b>Examples of Verbatim</b>
<b>Working Spaces for creative experiment</b>	-	Working Spaces for creative experiment	<b>Shane: ...where we had interactive spaces for people to go and experiment and play.</b>

## 2. MEDIATORS (Positive/Enhance)

### Team Creative Process

Team leaders have identified team creative process as the most important Mediator category, which comprises subcategories such as ideation phase, research, selection phase, follow up feedback, and test (Table C42).

**Table C42**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Ideation Phase</b>	<b>79</b>	<b>26</b>
<b>Research</b>	<b>22</b>	<b>8</b>
<b>Selection Phase</b>	<b>9</b>	<b>6</b>
<b>Follow up feedback</b>	<b>3</b>	<b>3</b>
<b>Test</b>	<b>3</b>	<b>2</b>

(n=33)

### Subcategory-level 1: Ideation Phase

The subfactors of the Ideation phase are shown in Table C43, followed by the examples of verbatim in Table C44.

**Table C43**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Ideation Phase</b>	<b>79</b>	<b>26</b>
<b>Subcategory-level 2</b>		
Ideation meeting	30	15
Brainstorming	17	8
Design thinking	10	7
Combining approach	6	6
Scrum meeting	6	4
Using agile process	5	3
Build on top ideas	4	4
Idea generation phase	4	2



Workshop + Ideation session	2	1
Refining individual ideas before meeting as creative process	1	1

(n=33)

**Table C44***Examples of verbatim for Team creative process – Ideation phase*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Team creative process	Ideation phase	Ideation meeting	<b>Amadeus:</b> We do not have a lot of structures in place. I would say that the few structures that we do have in place is <b>just meeting structures</b> and what kind of meetings we have. So, when it is a project that involves two or more people, we always have a kickoff meeting and then we normally try to follow that up. So that's just to give the first debrief of what we want to achieve. And then normally we have a second meeting where we get together more. <b>Normally we classify it as a brainstorming meeting</b> where we are currently using.
		Brainstorming	<b>Pawinee:</b> It's a basic method, it's <b>brainstorming</b> . Because we have a topic, because we are brainstorming each topic, we will have to share the topic to look at the details and then present the progress. Meeting from time to time, depending on whether the project is short or long, then we will decide together by expressing opinions and <b>voting if we have different opinions</b> because we It may be necessary to choose to continue walking in the next step.
		Design thinking	<b>Noi:</b> It uses the principle of <b>design thinking</b> . In fact, the crazy idea project is <b>the starting point of design thinking</b> , must it be empathize. Empathize people inside first, and then I said that when it was initiated. . project and then we find teamwork members in that room who wants to do this project, they will raise their hands....
		Combining approach	<b>Gordon:</b> So, we obviously <b>we use a lot of different Processes</b> .
		Scrum meeting	<b>Japan:</b> <b>...scrum meeting</b> . We somehow wrap up each other 15 minutes every day, I think this is very powerful, but maybe not 50 minutes,

			maybe less than that. But everyone discuss problem and we try to solve in at the end of the day and not let the problem so long until the next meeting.
		Using agile process	<b>Gordon:</b> So, <b>using agile processes to think quickly, think creatively</b> , etc. So, so when I do that type of thing, I might go in and I might be working with a big team of the organization. And we might do things like workshops. We might have small projects that we work on together. And it might be a few weeks. It might be a few months. So that's one part of what I do.
		Build on top ideas	<b>Boy:</b> It's happen from the brainstorm, that is, it is a continuation, that is, the <b>first idea may be a general idea that can be found on the internet, then we build on top ideas again</b> , it will start to become more and more novel. So it makes this project different from the old projects that have been done before.
		Idea generation phase	<b>Aof:</b> It's a process from generating ideas to make it solid as some stage gates because it will be something that doesn't encounter technical, there must be a committee who comes to help filter the possibility. It's stages that will continue...
		Workshop + Ideation session	<b>Nui:</b> Do it as a <b>workshop</b> and then s It's like breaking parts for each person. Help simulate things and then let everyone throw ideas out into <b>brainstorming</b> . We do it often...
		Refining individual ideas before meeting as creative process	<b>Boy:</b> It is very important to talk, that is, we will not come in and talk to each other every day, we try to say that 3 days, two days, three days, is with yourself or at home and meet together because <b>we believe that we can generate an idea that we have just thought of, or is it fresh? It may not have been polished yet</b> , so we do not dare to present it. Therefore, saying that we are alone Well, we <b>have time to refine it</b> . Finally, we get a good idea. Finally, we have the courage to present more of that idea. So, it's our creative process, which has a lot of impact. Yes, <b>an idea that has been refined, and we've talked about it, is quite high quality and easy to build on</b> .

### Subcategory-level 1: Research

The subfactors of Research are shown in Table C45, followed by the examples of verbatim in Table C46.

**Table C45**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Research</b>	<b>22</b>	<b>8</b>
<b>Subcategory-level 2</b>		
Did extra research with key people	7	3
Research on competitor	6	3
We did research on material	3	1
Survey on customer	2	2
UX research	2	2
Benchmarking	1	1
Feasibility study	1	1

(n=33)

**Table C46**

*Examples of verbatim for Team creative process – Research*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team creative process</b>	<b>Research</b>	Did extra research with key people	<b>Ben:</b> what we'll do is a series of <b>interviews with sort of key people within the company</b> . So, the bosses, the marketing directors, the salespeople who also of course it depends on what type of company it is, <b>but we always just try to cover lots of different people within the company</b> . So, we get a good, clear idea of what everyone is thinking. <b>We then do some research about who they are</b> and because a lot of times a company doesn't know how other people see them, you know, they think, okay, we do this, and people think of us like that. But that might not be true. The public can see them in a very different way, and sometimes that's the problem. <b>So, we do a lot of research to see how they are perceived in the market from other people.</b>

		Research on competitor	<b>Matthew:</b> So, like I said, <b>we start with research and then then from there we gather a lot of reference. So, there's a lot of competitive research</b> you could call it as well, which falls in the in the research department as well. But that also gives you some guides which and then it goes into like a conceptualization stage where you are generating ideas based on your research and references that you've gathered. So that's, in the designer's part.
		We did research on material	<b>Scott:</b> So I think that's and also we had to <b>research the material.</b> We hadn't used it before and we didn't know anything about it. We found people who knew how to build traditionally out of that form of building. So, and it was an eco sustainable project where the shape of the building was natural air conditioning. So, the actual shape of the grain dome from Africa we used as a natural air conditioning. So, the water passed over the water and then through the building and up. <b>So that was some of the creativity I think.</b>
		Survey on customer	<b>Moshi:</b> We have <b>customer surveys all the time.</b> All the time, we are constantly complained by customers. Here is the data that, in the end, what problems do customers have the most? What problems should we solve for them? Second, customers want anything...
		UX research	<b>Moshi:</b> Actually, we send more <b>UX to research</b> whether this is what customers really want or not.
		Benchmarking	<b>Chu:</b> Maybe use the <b>benchmarking method</b> as well, we try to find it. If you think again, it will be difficult. An easier way to do it <b>is to find a way to compare what people in the industry like us have to do.</b>
		Feasibility study	<b>Vivan:</b> We also do <b>feasibility study</b> in our project...

### Subcategory-level 1: Selection phase

The subfactors of selection phase are shown in Table C47, followed by the examples of verbatim in Table C48.

**Table C47**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Selection phase</b>	<b>9</b>	<b>6</b>
<b>Subcategory-level 2</b>		
Vote	7	3
Follow up every quarter	2	2
Group all of the challenges into one specific project	1	1

(n=33)

**Table C48**

*Examples of verbatim for Team creative process – Selection phase*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team creative process</b>	<b>Selection phase</b>	Vote	<b>Pawinee:</b> We will decide together by expressing opinions and <b>voting</b> if we have different opinions.
		Follow up every quarter	<b>Nipaporn:</b> I then change it <b>to follow each step to be every quarter</b> , starting with what we used to follow at the beginning and at the end, we follow every moment, how do you propose a work plan? any matter here will make it more successful. Therefore, when presenting in meetings, <b>I look at it as a follow-up to work...</b>
		Group all of the challenges into one specific project	<b>Amadeus:</b> During when we are still working from home, right, so we do have, of course, every time we start a, we have multiple projects that we're working on. So since we're a marketing team, there is always new challenges that we have to solve. So normally <b>we group all of these challenges into one specific project and that we label out in in our project management software.</b>

### Subcategory-level 1: Follow up feedback

The subfactors of follow up feedback are shown in Table C49, followed by the examples of verbatim in Table C50.

**Table C49**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Follow up feedback</b>	<b>3</b>	<b>3</b>
<b>Subcategory-level 2</b>		
Listen to User/Customer feedback	2	2
Short meeting every Monday	1	1

(n=33)

**Table C50**

*Examples of verbatim for Team creative process – Follow up feedback*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team creative process</b>	<b>Follow up feedback</b>	Listen to User/Customer feedback	<b>Moshi:</b> The first thing is <b>to listen to user feedback. We open an open channel for customers to give feedback.</b> We get most of them. Customers wait for their delivery, but a lot of us send a lot of our products. They will say that this feature is not developed. <b>This, why our company doesn't do 1,2,3,4 order anymore...</b>
		Short meeting every Monday	<b>Api:</b> we have every Monday in the morning, <b>one session around half an hour, just a short session that we set up every week on this week.</b>

### Subcategory-level 1: Test

The subfactors of test are shown in Table C51, followed by the examples of verbatim in Table C52.

**Table C51**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Creative Process</b>	<b>113</b>	<b>28</b>
<b>Subcategory-level 1</b>		
<b>Test</b>	<b>3</b>	<b>2</b>
<b>Subcategory-level 2</b>		
Pilot	3	2
Test with user	1	1

(n=33)

**Table C52**

*Examples of verbatim for Team creative process – Test*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team creative process</b>	<b>Test</b>	Pilot	<b>Jay:</b> There should be more <b>Pilot</b> that is, something to try, and then gave them a platform to express more...
		Test with user	<b>Moshi:</b> Principle of Design thinking, then <b>pilot and then test with the user</b> . When the test is completed, we come out as a franchised product in 1 branch.

## Motivation

Team leaders have identified Motivation as the second most important in Mediator category, which comprises subcategories such as intrinsic motivation, and extrinsic motivation (Table C53).

**Table C53**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Motivation</b>	<b>55</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Intrinsic motivation</b>	<b>30</b>	<b>15</b>
<b>Extrinsic motivation</b>	<b>25</b>	<b>12</b>

(n=33)

### Subcategory-level 1: Intrinsic motivation

The subfactors of intrinsic motivation are shown in Table C54, followed by the examples of verbatim in Table C55.

**Table C54**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Motivation</b>	<b>55</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Intrinsic motivation</b>	<b>30</b>	<b>15</b>
<b>Subcategory-level 2</b>		
Challenge and we had never done it before	11	8
KPI for creativity and innovation	7	4
Excitement	5	4
Believe	2	1
Having strong passion	2	1
Think big change	2	1
Creativity + encouragement + understanding of problem	1	1
Fight together until they finish the course	1	1

(n=33)



Table C55

Examples of verbatim for Motivation – Intrinsic motivation

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Motivation	Intrinsic motivation	Challenge and we had never done it before	<b>Jay:</b> It may be a new problem that <b>has never done before</b> . There will be a need to sit together and help each other think and help each other find a solution.
		KPI for creativity and innovation	<b>J:</b> It also has a centralized process of organizing knowledge that everyone must have <b>KPIs for creativity and innovation</b> that can be shared and sent as lessons learned that occur in each company to the public as a share practice that There is benefit value...
		Excitement	<b>Amadeus:</b> I think they thought it was a <b>fun project</b> because it's not something that we that we normally do. So normally when you do something, when it's not in your normal day to day activities, when it's something that is maybe the scope is it's different to what you're normally working on that definitely sparks more and more creativity.
		Believe	<b>Ekkachat:</b> That is, it is, they must say that it is faith, that is, <b>to make believe in work...</b>
		Having strong passion	<b>Chu:</b> We say that we have <b>strong passion</b> . Try to tell the team that we have to succeed.
		Think big change	<b>Nine:</b> This project is a project that I told you it is about improving the line. <b>Think Big change</b> . It is a technology that is different. QC has to look at quality, R&D, look at product, process and QA. The condition is about the transfer, the matter of delivery, engineering. This also has engineering. Look at the setup of the innovation team. Look at various technologies.
		Creativity + encouragement + understanding of problem	<b>Ekkachat:</b> If the team doesn't see or doesn't have the same dream, you can't go. It's not just creative thinking, right? It has to be positive creativity + encouragement and understanding. right there
		Fight together until they finish the course	Japan: <b>They fight together until they finish the course.</b>

### Subcategory-level 1: Extrinsic motivation

The subfactors of extrinsic motivation are shown in Table C56, followed by the examples of verbatim in Table C57.

**Table C56**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Motivation</b>	<b>55</b>	<b>22</b>
<b>Subcategory-level 1</b>		
<b>Extrinsic motivation</b>	<b>25</b>	<b>12</b>
<b>Subcategory-level 2</b>		
Motivation as money support and rewards	10	2
Patent	7	4
Competitors	4	3
Client give us a reasonable budget	3	2
Good career path	1	1
Sponsorships	1	1

(n=33)

**Table C57**

*Examples of verbatim for Motivation – Extrinsic motivation*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Motivation</b>	<b>Extrinsic motivation</b>	Motivation as money support and rewards	<b>Ken:</b> In each project it must have <b>financial support and on the one hand is reward incentives</b> In terms of money, I think it plays a part in making everything succeed faster <b>such as research funds</b> . It has the effect of making research work quickly then success.
		Patent	<b>Vivan:</b> <b>Most of them is innovation, so it must have at least an IP</b> to confirm that it is a product that is new in the world, no one has ever seen anything before, no one has done it before.
		Competitors	<b>Moshi:</b> Competitors, <b>I believe that competitors are also accelerating factors</b> . If we don't do it, then there will be competitors to do it or that people who are called <b>existing in the market</b> . These factors are also important.

		Client give us a reasonable budget	<b>Ben:</b> ...because they enabled us to be really creative with our execution. So when we were actually doing the filming and the production, <b>we could be very creative because we have enough budget to do.</b> And it's often a thing that people really overlook when they're doing a creative project if they never budget properly for it.
		Good career path	<b>Jay:</b> The important thing is that it has <b>progress in career path.</b> When we solve difficult tasks, solve these problems, we will have accumulated points as motivation for taking into account the career path.
		Sponsorships	<b>Shane:</b> When I started it was quite open and there was still <b>sports sponsorships</b> and all different things from the Indian cricket teams to the Formula One racing teams. There was still money being poured into those things and you could still see tobacco in that sphere.

## Psychological Safety

Psychological safety has been identified as the third most important in Mediator category, which comprises subfactors shown in Table C58 and examples of verbatim in Table C59.

**Table C58**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Psychological Safety</b>	<b>31</b>	<b>17</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Culture of sharing ideas without judgment	17	10
People have to feel safe to express the ideas	15	10

(n=33)

**Table C59**

*Examples of verbatim for Psychological safety*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Psychological Safety	-	Culture of sharing ideas without judgment	<b>Amadeus:</b> There has to be a culture <b>where everyone is free to share their ideas without judgment.</b> I feel like many times in, I feel it in our company as well, and sometimes there is people are scared of voicing their opinions, expressing their ideas, etc. and. That doesn't lead to any creativity at all.
		People have to feel safe to express the ideas	<b>Gordon:</b> So, they and that's always important for creativity, is that people feel excited, they feel like they can contribute. <b>So they have to feel safe that it's okay for them to have ideas.</b>

### Synergy/Collaboration

Team leaders have identified Synergy/Collaboration as the fourth most important in Mediator category, which comprises subcategories such as Synergy and Open for collaboration (Table C60).

**Table C60**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Synergy/Collaboration</b>	27	11
<b>Subcategory-level 1</b>		
<b>Synergy and Open for collaboration</b>	27	11

(n=33)

### Subcategory-level 1: Synergy and Open for collaboration

The subfactors of Synergy and Open for collaboration are shown in Table C61, followed by the examples of verbatim in Table C62.

Table C61

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Synergy/Collaboration</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Synergy and Open for collaboration</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 2</b>		
Synergy	15	3
Community of practice	4	3
Open for collaboration	4	4
Used collaborative software	4	4
Cooperation helps generate ideas	1	1

(n=33)

Table C62

*Examples of verbatim for Synergy/Collaboration – Synergy and Open for Collaboration*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Synergy /Collaboration	Synergy and Open for collaboration	Synergy	<b>Aof:</b> There is a <b>synergy going in at all levels of employees</b> , suggesting ideas, it will change from top down to bottom up and we do the whole group.
		Community of practice	<b>J:</b> The main activity of the team is to try to create a share apply atmosphere in the organization to collaborate and work as <b>Community of practices</b> , practitioners community, engineer group, accounting group, support group which in it. There are many work groups that are used to create <b>Community of practices</b> in order to create a model of meeting, exchanging, and learning among like-minded people who share the same interests.
		Open for collaboration	<b>Aof:</b> On our side, <b>it will be open for collaboration</b> for them to have knowledge, what they lacks, we prepare, that is, to prepare all employees, there will be a mix of business approaches and culture...
		Used collaborative software	<b>Amadeus:</b> we are using a <b>tool</b> called Figma and they are they have a. A new product offering, which is called Figjam, and it's very similar to something like <b>Miro</b> where they have all of these. Okay. So and as you

			know these platforms, they also offer templates, etc.
		Cooperation helps generate ideas	<b>Japan: Cooperation in group is the thing that helps generate the idea.</b> Yes, because when we co-worker, we did things together and we come up with something.

## Team Learning

Team leaders have identified Team learning as the fifth most important in Mediator category, which comprises subcategories such as knowledge sharing, learning process in team, training, and knowledge availability (Table C63).

**Table C63**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Knowledge sharing</b>	<b>16</b>	<b>15</b>
<b>Learning process in team</b>	<b>4</b>	<b>4</b>
<b>Training</b>	<b>4</b>	<b>4</b>
<b>Knowledge availability</b>	<b>1</b>	<b>1</b>

(n=33)

### Subcategory-level 1: Knowledge sharing

The subfactors of knowledge sharing are shown in Table C64, followed by the examples of verbatim in Table C65.

**Table C64**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Knowledge sharing</b>	<b>16</b>	<b>15</b>
<b>Subcategory-level 2</b>		
Knowledge sharing both in/external team	12	11
Knowledge sharing is the best team learning	3	3

KS and KT at early stage help us onboarding really very fast	1	1
Mentoring as KS	1	1

(n=33)

**Table C65***Examples of verbatim for Team learning – Knowledge sharing*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Team learning	Knowledge sharing	Knowledge sharing both in/external team	<b>Japan:</b> Yes. I think a lot of <b>ideas sharing or knowledge sharing that we get back and forth between when we discuss with each other that maybe, maybe is also internal in our team and also external with the client</b> we share ideas and share how because normally the same problem we solve in a different way and we share each other that OK, so this team, solve this way and this team, solve this way. But sometimes we come up with some kind like mix and match plugin of the solution so shown that, OK, normally we do like this. But if we are adding some process of our suggestion for the client maybe good results.
		Knowledge sharing is the best team learning	<b>Nipaporn: Knowledge sharing</b> is very important, some ideas are that we are not the ones who think for ourselves, so we have to share, share so that everyone accepts our ideas, sometimes some people will get the idea. Learn new things too.
		KS and KT at early stage help us onboarding really very fast	<b>Api:</b> So, the first step that when I saw at the early months that join most of this member was of these people join and know. So two people sharing to me that how the atmosphere or how the culture in our company group be, or how you should work with this brand or how you should work with this person because this kind of person have more experience more than me and <b>then transfer to me.</b> How do I should to do...
		Mentoring as KS	<b>Sai: This is KS, it's technical knowledge. The seniors also teach their subordinates company that Industry knowledge is important,</b> which the team leader takes the team members out to see.

### Subcategory-level 1: Learning process in team

The subfactors of Learning process in team are shown in Table C66, followed by the examples of verbatim in Table C67.

**Table C66**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Learning process in team</b>	<b>4</b>	<b>4</b>
<b>Subcategory-level 2</b>		
Learning organization	2	2
Learning process	1	1
Team learning all the time	1	1

(n=33)

**Table C67**

*Examples of verbatim for Team learning – Learning process in team*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team learning</b>	<b>Learning process in team</b>	Learning organization	<b>Vivan:</b> There are many roles, we need employees at Innovative, because our organization is driven toward a <b>Learning organization</b> , that is, it is very important to create projects that are beneficial to the organization.
		Learning process	<b>Matthew:</b> So yeah, I think the <b>learning process</b> is very, it's key and it's key to just helping not only the job but also people and then their next work will get better and better from then on.
		Team learning all the time	<b>Pawel:</b> they're <b>learning all the time</b> that they're doing it and they're also teaching each other at the same time. And they're also reaching out to people in blogs about How do I do this? How do I do that? So super important.



### Subcategory-level 1: Training

The subfactors of training are shown in Table C68, followed by the examples of verbatim in Table C69.

**Table C68**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Training</b>	<b>4</b>	<b>4</b>
<b>Subcategory-level 2</b>		
Give opportunity to members to learn and to become an expert	1	1
Need a specific kind of training as a facilitator	1	1
Our members may join seminar or workshop that create more ideas	1	1
Training	1	1

(n=33)

**Table C69**

*Examples of verbatim for Team learning – Training*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Team learning</b>	<b>Training</b>	Give opportunity to members to learn and to become an expert	<b>Nui:</b> We must give the opportunity to everyone in the team who goes into that expert.
		Need a specific kind of training as a facilitator	<b>Gordon:</b> So but that you need training to be able to do that. Right. <b>You need you need a specific kind of training as a as a designer, a creative, to kind of look at a bunch of things</b> and say, what can we do with this? So. That's why I think when I'm when I'm doing a workshop or I'm doing some kind of co-creation. I'm really not that worried about what I see. I'm not really worried about the output too much because it's my role. To take that output and make some meaning from it. Right. Whereas a lot of people say, no, no, no, the output has to be really good. You can't judge it. You really can't judge it. It's not the

			output itself. It's what you take it and you make it with. Right. You have to create meaning from that. So. So, yeah, <b>I think the, the people facilitating the people leading creative activities have to really be trained in an understanding. That you're not looking for the great idea at the end of a collaboration, creative collaboration. It's our job to make that great idea out of the output.</b>
		Our members may join seminar or workshop that create more ideas	<b>Api:</b> ...they may join the seminar or something that create more idea, an idea of the new digital For example, metadata.
		Training	<b>Nut:</b> Yes, it's not that hey, you have to share it first and then gradually get out or succeed, it's not a practice, it's a <b>training</b> rather than a knowledge sharing to understand these people.

### Subcategory-level 1: Knowledge availability

The subfactor of Knowledge availability is shown in Table C70, followed by the examples of verbatim in Table C71.

**Table C70**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Team Learning</b>	<b>27</b>	<b>11</b>
<b>Subcategory-level 1</b>		
<b>Knowledge availability</b>	<b>1</b>	<b>1</b>
<b>Subcategory-level 2</b>		
Can access to Knowledge and Expertise from diff operations	1	1

(n=33)

**Table C71**

*Examples of verbatim for Team learning – Knowledge availability*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Team learning	Knowledge availability	Can access to Knowledge and Expertise from diff operations	<b>Shane:</b> we were an agency with a brief, with a focus and with a task. Again, we were able to operate in a geographical locations. My agency was not one of one, it was one of many. <b>We had many, many different operations around the world, so we were able to access those and bring in that knowledge and expertise.</b>

## Communication

Team leaders have identified communication as the sixth important category, which comprises subfactors as shown in Table C72.

**Table C72**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Communication</b>	<b>24</b>	<b>14</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Communication among team members	13	7
Give Constructive feedback (Not comment on personal)	4	4
Informal meeting	4	3
Asking questions	2	2
Direct communication helps create good environment/ trust	2	2
Attentive listening	1	1

(n=33)

Table C73

Examples of verbatim for Communication

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Communication	-	Communication among team members	<b>Amadeus:</b> I think the communication aspect is probably more important then.
		Give Constructive feedback (Not comment on personal)	Nina: this is the way we comment, we will comment in a way that is not personal, <b>does not attack personal quality with him, but we will take us very objectively</b> , the work that we will criticize on the work and not criticize on the person
		Informal meeting	<b>Pom:</b> Most of them are <b>informal</b> . Because I understand that with the covid situation than we haven't met at all, it's a meeting through a conference like this, so it doesn't look very formal.
		Asking questions	<b>Amadeus:</b> <b>Asking questions is something that I think is super important</b> as well, especially, uh, being comfortable enough to ask your team leader or the leadership asking questions when you're unsure as well to be able to to always. Still be on the right track and the right direction so that, you know, within which boundaries you can use your creativity.
		Direct communication helps create good environment/trust	<b>Ong:</b> My atmosphere that I use to build a team is that we are all <b>direct talkers</b> . I always tell my subordinates to talk to you. The office will be the office of straight talkers, <b>everyone is free to speak, give time to create an atmosphere for work</b> , I think it encourages creativity.
		Attentive listening	<b>Pawinee:</b> Especially communication, which includes <b>listening attentively</b> and giving feedback as well, I think it's very important.

## Top management support

Team leaders have identified Top management support as the seventh important category, which comprises subfactors as shown in Table C74, followed by examples of verbatim in Table C75.

**Table C74**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Top management support</b>	<b>21</b>	<b>12</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Top-down management support	10	7
Clear direction from top management	6	5
Final decision from top-management or CEO	4	3
Stakeholder/CEO support	2	1
Our boss helps us how we get closer	1	1

(n=33)

**Table C75**

*Examples of verbatim for Top management support*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Top management support</b>	-	Top-down management support	<p><b>Nut:</b> I have to say that the other one has received support from the top-level management team as well. We think at the worker level. People who have already worked... <b>What is quite obvious is that the top-level management and executives agree with many concepts for it to allow it to happen.</b></p> <p><b>J:</b> The most important part is the matter of the sponsor, that is, <b>they have to come from top management, that is, the top management is the one who sets the budget and has to take care of this project according to the budget that has been set for a long time. Monitoring like still posted about</b></p>

			<p><b>Key milestones to be clear that until this milestone you have delivered,</b> it's about things that have been done. There is something about financial return. What can be about the benefits that have been done? You can reduce the manpower that has to come this way less and increase the value that is any benefit if it succeeds key enables it should have something whether it's from <b>top-down direction support</b> from executives and employees, etc.</p>
		Clear direction from top management	<p><b>Aof:</b> Another thing that should be thought about is <b>the direction of the strategy direction of the company that comes from the top management</b> that is, <b>he must be clear that he is going towards the vision mission.</b> The problem that This is very important, because if we don't have this, we cannot think , we go anywhere in random, we will get lost, <b>direction and communication from high level</b></p>
		Final decision from top-management or CEO	<p><b>Nut: The top level above decides,</b> we are responsible for collecting and presenting, but in the end, <b>it is decided at the top management level again.</b></p>
		Stakeholder/CEO support	<p><b>Gordon:</b> Okay. Right. So who's the <b>main stakeholder?</b> And. You know. So if the. If it's just like your direct line manager, if it's like a middle manager, somebody, I think most people would feel like whatever we do is not going to make much of a difference. But usually in my work, <b>I'm working with like the CEO or the chairwoman or something. So when the chairwoman is like, Gordon is here to do this, then I think people feel a lot more excited about the potential of what they can do because they know it's got high level support within the organization.</b> Yeah. And so they feel more excited because they think, wow, if we do something really good. This. The chairwoman is saying Gordon's going to work with us. This could be a really great opportunity to do something cool.</p>
		Our boss helps us how we get closer	<p><b>Api:</b> And sometimes when we have work from home, our <b>boss, our director sends the food because we, we work as a food. She sent the food, but her boss said to us and eat</b></p>

			together on a virtual, that is the good idea. That's how we can get closer or even we don't work at the office together.
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## External Interactions

Team leaders have identified external interactions as the eighth important category, which comprises subfactors as shown in Table C76, followed by examples of verbatim in Table C77.

**Table C76**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>External Interactions</b>	<b>15</b>	<b>11</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Work with external team	11	10
Network collaboration	4	2
External funding	1	1

(n=33)

**Table C77**

*Examples of verbatim for External interactions*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>External Interactions</b>	-	Work with external team	<b>Hadrien:</b> we realized it was really too big for us to take on. And this is when we started to contact bigger studio to help us and. What I like is that at some point we really worked on it for six months as a team
		Networking collaboration	<b>Aof:</b> Another part that we do is linking with <b>various partnerships</b> to link and come to our own business with various deals. And the work that we are doing is quite related to partner agencies. Outside whether going to college, startup, university or even corporate partners, depending on the topic we're on into

		External funding	<b>Japan:</b> And thing we got some <b>funding from the DEPA</b> because there is some kind like the government. Some one of GOV org. in Thailand, they have some budgets to improve the skill of the worker in Thailand on Data Analytics and they announced this fund, we are gathering together to fishing for that fund. And we got that funds on the process of proposal develop is a bit hard.
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### Relationship with client

Team leaders have identified Relationship with client as the nine important category, which comprises subfactors as shown in Table C78, followed by examples of verbatim in Table C79.

**Table C78**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Relationship with client</b>	<b>13</b>	<b>7</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Client trusted us 100%	4	1
Customer approved our project	3	3
Relationship with client	1	1
Client listened to us	1	1
Client team learnt a lot from us	1	1
Client understanding the game/how we work	1	1
Client was flexible and willing to take risk	1	1
Customer feedback	1	1
Direct contact with decision makers	1	1

(n=33)



Table C79

Examples of verbatim for Relationship with client

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Relationship with client	-	Client trusted us 100%	<b>Ben:</b> it so successful for us was that the <b>client trusted us 100%</b> . And although we told them we're going to do something that you didn't ask for, they could see the power in what we wanted to do and how. By being creative.
		Customer approved our project	<b>Matthew:</b> there's always a process and there's always steps you have to take not only in creative, but like to get creative to actually execute. <b>You have to get approval from like different departments in the company or like the clients.</b> So you're not going to like, for example, go and execute a creative job without showing like concepts to the client.
		Relationship with client	<b>Ben:</b> I think more it was our <b>relationship with the client</b> , you know, different because they trusted us.
		Client listened to us	<b>Ben:</b> The client listened to us. That was really, really helped.
		Client team learnt a lot from us	<b>Ben:</b> We weren't doing anything that we hadn't done before for this particular project, but I can imagine for a lot of people they were. I think for the client team, they had not really done what we had, the process that we had gone through. So, <b>I think they learnt a lot from us.</b> For us it was kind of it doesn't really matter what kind of client you deal with, you still have the same process. So I mean, we learned a bit about their culture I guess
		Client understanding the game/how we work	<b>Shane:</b> We weren't under too much time because <b>we had a client who understood the game.</b> They understood the briefing process. They understood how to work with agencies. And they understood that if you're going to ask an agency to develop some campaign communication ideas. That takes time.
		Client was flexible and	<b>Scott:</b> I think the client. I mean, <b>the client was flexible and willing to take risk</b> , because I didn't get

		willing to take risk	involved so much, but <b>they were willing to do something that was different, new, unusual.</b>
		Customer feedback	<b>Api:</b> ... customer feedback.
		Direct contact with decision makers	<b>Ben: we had direct contacts with the decision makers.</b> So quite often a client will, you know, you'll have to see the top of a company and then you have lots of people and then you'll have the marketing people and only the marketing people will deal with you. And we never get to talk to the CEO and explain things to them properly, and that can always cause problems. Whereas with this project they were allowing us to talk to the leadership at every stage. <b>We were talking to decision makers, and that made us so much more successful and much more creative because we could understand what they wanted, not what somebody sat in office wanted.</b>

## Cohesion

Team leaders have identified cohesion as the top ten important category, which comprises subfactors as shown in Table C80, followed by examples of verbatim in Table C81.

**Table C80**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Cohesion</b>	<b>10</b>	<b>7</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
We are close and get along with each other	4	4
Strong cohesion	3	3
Team spirit	2	2
Team building	1	1

(n=33)

**Table C81***Examples of verbatim for Cohesion*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Cohesion</b>	-	We are close and get along with each other	<b>Hadrien:</b> Guys and girls of the team were super close to each other. Like I said, they go out to take the drink, they go on a weekend. They were going like a lot of stuff together because the company culture and the way we're organized, it's not flat.
		Strong cohesion	<b>Shane:</b> I think that there was a good, <b>strong cohesion</b> . It wasn't perfect because everyone had to go away, build their strengths, come back.
		Team spirit	<b>Sai:</b> There is one factor that causes <b>team spirit. It is the reason that they feel each other doing that.</b>
		Team building	<b>Jay:</b> <b>Team building...</b> Team building that we have an understanding of the ideas of the other side.

**Share Mental Models**

The subfactor and the examples of verbatim of Shared mental models was shown in Table C82.

**Table C82***Examples of verbatim for Shared mental models*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Shared Mental Models</b>	-	Shared mental models	<b>Api:</b> if someone in his team don't understand the same direction or the same way or we don't talk and understand clearly in all the team, we cannot create the simple idea because like we do.

## Creative Autonomy

The subfactor and the examples of verbatim of Creative Autonomy was shown in Table C83.

**Table C83**

*Examples of verbatim for Creative autonomy*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Creative Autonomy	-	Creative Autonomy	<b>Anthony:</b> My team members have <b>total freedom</b> in how they would achieve the goals.
			<b>Kietsakul:</b> You have to give him <b>freedom</b> to give him time to think like that, not force that he must get an answer today, so he must have a good idea right now.

## Trust

The subfactor and the examples of verbatim of trust was shown in Table C84.

**Table C84**

*Examples of verbatim for Trust*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Trust	-	Trust	<b>Hadrien: trust is the most important one</b> because you cast the right people. There's no such thing as a bad idea, but there's a bad timing. Sometimes. Maybe it's a good idea, but it's not the right moment to bring it up.

## Apply New Technology

The subfactor and the examples of verbatim of Apply New Technology was shown in Table C85.

**Table C85**

*Examples of verbatim for Apply new technology*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Apply New Technology	-	Apply new technology	<b>Pawel:</b> So, this was <b>using quite simple technology</b> . We used Unreal Engine and a headset, VR headset. And what it allowed us to do was to show the client exactly what the room would look like.

## Coworker Support

The subfactor and the examples of verbatim of Coworker support was shown in Table C86.

**Table C86**

*Examples of verbatim for Coworker support*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Coworker support	-	Coworker support	<b>Anthony:</b> And but like I say before, you never hear about the team, the team from, for example, Albert Einstein. <b>Of course, he also worked with people to verify his ideas. But they are team in the background.</b>

### 3. TIME (Positive/Enhance)

#### Time Pressure

Team leaders have identified time pressure as the most important category, which comprises subfactors as shown in Table C87, C88.

**Table C87**

*Frequency of factors that influence team creativity mentioned during interviews*

Positive/Enhance Category	Frequency	Leaders (N=33)
<b>Time Pressure</b>	<b>29</b>	<b>15</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Clear Timeframe	11	7
Have enough Time for experiment	9	3
Time pressure helped to get certain results	5	5
We were given a very luxurious timeline	3	1
Advantages of time pressure	1	1

(n=33)

**Table C88**

*Examples of verbatim for Time pressure*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
Time pressure	-	Clear Timeframe	<b>Amadeus:</b> there <b>has to be enough time</b> in order for. That's for four projects, because it's all based on the goal and what has to be achieved with within this. And for some projects, we are setting maybe a too long timeline because it's also about. The business impact it has and how creative we need to be for that specific project. Sometimes it works just but there has to be <b>enough time, but there also has to be a timeline.</b>
		Have enough Time for experiment	<b>Pawel:</b> I guess the big difference is <b>they were able to experiment more</b> so normally on a project. On a client project, time is very short. So, the amount of time available to experiment is very limited with this

			project because it was an internal project to start with. <b>We were able to give much more time for experimentation</b> , and that really is the key to getting successful results.
		Time pressure helped to get certain results	<b>Scott:</b> Time. Pressure is always important for creativity. So, It was quite a lot of pressure and <b>that forced us to come up with ideas quickly.</b>
		We were given a very luxurious timeline	<b>Shane:</b> we had <b>the luxury of time</b> to be able to do it, and that contributed to our great creative ideas, thinking, process and methodologies.
		Advantages of time pressure	<b>Aof:</b> There are both pro and con parts <b>in terms of pro, that is, it helps us to have a framework and a clear timeline</b> that is the idea that it should have, and where it should end, as we know. Convergent divergent, it has to increase and decrease, if we think for a very long time , it doesn't really see results. For idea generation, it's just the first phase...

## High Longevity

The subfactor and the examples of verbatim of High longevity was shown in Table C89.

**Table C89**

*Examples of verbatim for High longevity*

Category	Unified Positive factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>High longevity</b>	-	High longevity	<p><b>Ben:</b> Well, me and my business partner have <b>actually worked together for about eight years</b>. So yeah, I think the fact that we have a shorthand with each other that we don't have to explain everything too much. I just get what he's saying and he gets what I'm saying. So yeah, I think that's very important.</p> <p><b>Jay:</b> I've had the experience of working together in a team that has just joined in and from a long time together. <b>For long time, they will have more trust together</b></p>

Additionally, Table C90, C91, C92 show the frequency of factors that negatively influence team creativity mentioned during interviews.

**Table C90**

*Frequency of factors that negatively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **INPUTS: NEGATIVE/HINDER**)*

<b>Frequency of factors that influence team creativity (INPUTS)</b>		
<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Factors outside team control	30	11
Poor leadership	28	10
Bad team composition	21	11
Specific context constraints in Thailand	14	5
Larger team size, Less creativity	4	2
Cultural factor of not taking ownership of ideas	1	1
Result oriented	1	1

**(n=33)**

**Table C91**

*Frequency of factors that negatively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **MEDIATORS: NEGATIVE/HINDER**)*

<b>Frequency of factors that influence team creativity (MEDIATORS)</b>		
<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Lack of Team creative process	27	12
Not clear goals and direction	8	4
Bad team learning	5	4
Related to clients	5	3
Resistance to change	4	2
Did the old same things	2	1
Lead to conflicts	2	2
My team didn't go to the same direction	2	2
Too big project that we can't take on	2	2
Low cohesion	1	1
They need to survive in this project	1	1

**(n=33)**



**Table C92**

*Frequency of factors that negatively influence team creativity mentioned during interviews*

*(Organized follow Team Creativity IMOT Model: **TIME: NEGATIVE/HINDER**)*

<b>Frequency of factors that influence team creativity (TIME)</b>		
<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
Time Pressure as Negative factors	18	13
High longevity reduces creativity and productivity	5	3

**(n=33)**

#### **4. INPUTS (Negative/Hinder)**

##### **Factors outside team control**

For negative factors, the team leaders mentioned Factors outside team control as the first top important factors during the interviews. Table C93, C94 show the subfactors and examples of verbatim.

**Table C93**

*Frequency of factors that influence team creativity mentioned during interviews*

<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Factors outside team control</b>	<b>30</b>	<b>11</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Limitation of budget	6	3
Need to control production costs	5	2
High expectation from top management	4	2
Campaign from management level as commander	3	1
Cannot commercialize	3	1
Restrictions on clients/customers	3	3
Company not support our project	2	2
Covid situation	2	1
Does not respond to customer needs	2	1
Cannot compete with China market	1	1
Restrictions on supply	1	1

**(n=33)**

Table C94

Examples of verbatim for Factors outside team control

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
Factors outside team control	-	Limitation of budget	<b>Nui: Time pressure and budget</b> , we can't do much, that is, because we want to launch so everything is an obstacle to creativity, as if time pressure limits us, <b>budget limits us...</b>
		Need to control production costs	<b>Nine: New products. It has to control production costs.</b> With creativity we can't be done all of things.
		High expectation from top management	<b>Nut:</b> The second one is the expectation. <b>The high expectation from the top management and the executive gives the problem.</b> It must be new, must be unique, must not be like what they have for sale in the market.
		Campaign from management level as commander	<b>Api:</b> This type of campaign that I say is not so successful campaign. And the key point I want to go to the key point why I say that it's not a successful campaign. I think that is it's from this <b>campaign is from the management level. It's commander.</b>
		Cannot commercialize	<b>Vivan: It cannot commercialize.</b>
		Restrictions on clients/customers	<b>Matthew:</b> And I guess with failing and this is probably on success as well, it's the <b>client.</b> It's the client or it's the the board. <b>So, like the yeah, the stakeholders of the projects, they always can actually be a limitation.</b>
		Company not support our project	<b>Anthony:</b> to tell you the truth, we are bankrupt and I cannot finance the last.
		Covid situation	<b>Pom: Covid situation</b>
		Does not respond to customer needs	<b>Moshi:</b> But in the end, the customer does not use it because it may not meet the customer's needs because it is too creative for the customer to use.
		Cannot compete with China market	<b>Ken: There is a Chinese product that can't compete with the price drop.</b>
Restrictions on supply	<b>Nine:</b> when a project has other restrictions, such as saying that there will be a cost of that product, the matter of <b>supply</b> , restrictions on customers and market survey to make new products etc.		

## Poor leadership

The team leaders mentioned Poor leadership as the second top important factors during the interviews. Table C95, C96 show the subfactors and examples of verbatim.

**Table C95**

*Frequency of factors that influence team creativity mentioned during interviews*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Poor leadership</b>	<b>28</b>	<b>10</b>
<b>Subcategory-level 1</b>		
-	-	
<b>Subcategory-level 2</b>		
Poor leadership	11	3
Leader does not so strict and guide team	4	1
Leader don't have time to take care or manage the team	3	1
Very senior takes lead in COP	3	1
Bad facilitation	2	1
Leaders are more criticize	2	1
Direct boss kill ideas	1	1
Leader was not good at fostering safe environment	1	1
Leader's communication is unclear	1	1

(n=33)

**Table C96**

*Examples of verbatim for Poor leadership*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Poor Leadership</b>	-	Poor leadership	<b>Japan:</b> but the leader not perform well...
		Leader does not so strict and guide team	<b>Matthew:</b> if the leader the if the leader is <b>not leading the team</b> , the project is bound to fail because the leader is not <b>giving direction and guiding</b> the team to delivery.
		Leader don't have time to take care or manage the team	<b>Ong:</b> Brainstorming Session is a lot of unsuccessful. <b>As a part of the leader, that is, I did not have time to take care of team.</b> Just went to deal with it because it was a 2-year covid period.

		Very senior takes lead in COP	<b>Noi:</b> What I explained, actually this process runs the same, but the problem is that when we let anyone can come in , because anyone can come in , if <b>the senior person comes up , he will sit at the head of the team. sometimes he is more senior than us</b> he will take lead of the team...
		Bad facilitation	<b>Gordon:</b> We're going to ideate. But then. <b>I think a lot of times this is done as theater. Like it's just for show,</b> right? Because you have somebody who. It's facilitating who maybe not, doesn't really know what to do with that.
		Leaders are more criticize	<b>Amadeus:</b> I would say, yeah, so leadership that is more. <b>That criticizes more than it. It's positive, it's something that really. Really blocks creativity and really block you to. Share that second idea that you have</b> when you think you have a great idea, when you think you, you, you come up with something new that you want to test or that you want to try, but you don't put it on the table because you're afraid of being shut down, basically.
		Direct boss kill ideas	<b>Noi:</b> Sometimes Direct boss kills ideas of the team.
		Leader was not good at fostering safe environment	<b>Liam:</b> On this project, we had a senior designer who was. He was very good, but a little prickly. And then, I mean, not as warm and friendly as we probably should have had somebody on this on the product. He was really good at getting the work done, <b>but was not good at fostering that safe environment.</b>
		Leader's communication is unclear	<b>Ken:</b> If communication is good, it will generate another good idea. Communication is good, for example, clearly explaining what we want to do. If communication is unclear it will lead to lower creative ideas...

## Bad Team Composition

The team leaders mentioned Bad team composition as the third top important factors during the interviews. Table C97, C98 show the subfactors and examples of verbatim.

**Table C97**

*Frequency of factors that influence team creativity mentioned during interviews*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Bad team composition</b>	<b>21</b>	<b>11</b>
-	-	
<b>Subcategory-level 2</b>		
Lack of specific knowledge and experience	9	5
Form a team not covered in the project	7	4
Bad attitudes lead to low creativity	1	1
Big team create free rider	1	1
High gap level of education	1	1
Multiple people that have multiple ideas will only lead conflicts	1	1
Team membership change	1	1

(n=33)

**Table C98**

*Examples of verbatim for Bad team composition*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Bad Team Composition</b>	-	Lack of specific knowledge and experience	<b>Scott:</b> They <b>didn't have the experience or knowledge of that kind of project.</b> So they didn't use the expertise that we have and they didn't follow our process.
		Form a team not covered in the project	<b>Scott:</b> We <b>didn't form a strong team before we went to see the client</b> and we sent someone who. Was not straight out of school, but not that experienced, but very keen. And they went and got the brief from the client and thought they understood what the client wanted and. We didn't have enough senior people on the project,

			but the designer was very keen, very enthusiastic, quite creative and had a support team but didn't follow our process
		Bad attitudes lead to low creativity	<b>Ong:</b> But if anything that will make creativity de activate and low at all, <b>it's an attitude...</b>
		Big team create free rider	<b>Chu:</b> The size of your 2-person team is 3 people. This is considered appropriate to a certain extent, <b>but if there are too many people, it will make free riders.</b> People who, in addition to not working, also make the working atmosphere make other people who work feel like that thing is indifferent.
		High gap level of education	<b>Japan:</b> but the things we our team is different <b>level of education</b> because in this team we work. We used to work with engineer and also some labor part, but some kind like worker and I say the labor. But the worker who didn't understand English, but the boss is talked only in English. I mean, the leader of the project tried to explain them. Well, they understand. Some kind like is the language barrier also.
		Multiple people that have multiple ideas will only lead conflicts	<b>Anthony:</b> And if you have multiple people that have multiple ideas, it will only <b>lead to conflicts.</b>
		Team membership change	<b>Amadeus:</b> One thing I think that also. Personally, that is also blocking a lot of things, it's a <b>lot of change in people coming and going</b> , etc. And this is also. Breaking it's always good to getting new people, but also when you're losing people and getting new people and when you always have to go through these establishing, you have to establish the relationships again, you have to establish the trust again. So that is also one thing that when it comes to making people feel comfortable making retention is a big part of it to because you will not have. There will not be novel ideas coming from someone who just joined the business, I believe. They can come in with a new fresh perspective and come in with something that. But normally they will come in and they will do exactly what they did in another company.

### Specific context constraints in Thailand

The team leaders mentioned Specific context constraints in Thailand as the fourth top important factors during the interviews. Table C99, C100 show the subfactors and examples of verbatim.

**Table C99**

*Frequency of factors that influence team creativity mentioned during interviews*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Specific context constraints in Thailand</b>	<b>14</b>	<b>5</b>
-	-	
<b>Subcategory-level 2</b>		
Hierarchy culture in Thailand	7	4
Thai culture	4	1
Context Constraints in Specific country (Thailand)	3	1

(n=33)

**Table C100**

*Examples of verbatim for Specific context constraints in Thailand*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Specific context constraints in Thailand</b>	-	Hierarchy culture in Thailand	<b>Amadeus:</b> there are issues I see some I do see, of course, people when they come in and the like, how the <b>hierarchy</b> is in the company. When we have people from Europe coming in in internship positions, even in a meeting with a senior executive, they are not afraid to ask a question or they are not afraid to maybe say something or ask something or and I also feel that, of course, then in in the team as well. And I do think, yeah, culturally from <b>there are some countries, Thailand is one example were. We don't see this this much</b> , and that is something that I think it doesn't mean that the creativity is not that right.
		Thai culture	<b>Matthew:</b> actually, like I've been working in Thailand for a long time and that's actually a huge. Yeah, that's, that's kind of interesting. That's

			always been a huge problem when especially when Thai culture...
		Context Constraints in Specific country (Thailand)	Japan: there are more things and try to searching thing and apply in Thailand because <b>Thailand have different context than other country.</b>

### Larger team size, Less creativity

The team leaders mentioned Larger team size, Less creativity as the fifth important factors during the interviews. Table C101 shows the subfactors and examples of verbatim.

**Table C101**

*Examples of verbatim for Large team size, less creativity*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Larger team size, Less creativity</b>	-	Larger team size, Less creativity	<b>Japan:</b> not too large or not so big team is so big team. Everyone cannot sharing the idea and maybe they do not not confident or share idea if there are very big team.

### Cultural factor of not taking ownership of ideas

The team leaders mentioned Cultural factor of not taking ownership of ideas as the sixth important factors during the interviews. Table C102 shows the subfactors and examples of verbatim.

**Table C102**

*Examples of verbatim for Cultural factor not taking ownership of ideas*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Cultural factor of not taking ownership of ideas</b>	-	Cultural factor of not taking ownership of ideas	<b>Amadeus:</b> Sometimes I'm expected to just take care of everything. Then people don't take ownership and then they don't push for what they believe in. For example, they don't push for, Hey, I think this is a great idea or this



			is a great idea. This is also sometimes a cultural thing. So, there's a culture aspect to not the creativity, but. Pushing for your ideas, and if you're not showing your ideas, if you're not expressing your ideas and opinions, then you will not have creative results because you will just follow in the same. It will just follow in the same on the same path that you've always done things.
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### Result oriented

The team leaders mentioned Result oriented as the seventh important factors during the interviews. Table C103 shows the subfactors and examples of verbatim.

**Table C103**

*Examples of verbatim for Result oriented*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Result oriented</b>	-	Result oriented	<b>Japan:</b> In fact, though, that is not a success, I mean. Because we think only try to finish the goal and result. We're not think on along the way. I mean, the process of doing things, we do not focus more on the process, but we focused some kind of set points and we just ran to the points.

## 5. MEDIATORS (Negative/Hinder)

### Lack of Team creative process

The team leaders mentioned Lack of Team creative process as the first important factors during the interviews. Table C104 provides the subcategories of Lack of Team creative process such as Lack of research and review process, Lack of engagement etc.

**Table C104**

*Frequency of factors that influence team creativity mentioned during interviews*

<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Lack of Team creative process</b>	<b>27</b>	<b>12</b>
<b>Subcategory-level 1</b>		
<b>Lack of research and review process</b>	<b>17</b>	<b>7</b>
<b>Lack of Engagement</b>	<b>4</b>	<b>3</b>
<b>Creativity/ideas cannot be forced to think about</b>	<b>3</b>	<b>3</b>
<b>People process technology not support</b>	<b>2</b>	<b>1</b>
<b>Gap between creativity and execution</b>	<b>1</b>	<b>1</b>

(n=33)

### **Subcategory-level 1: Lack of research and review process**

The subfactors of Lack of research and review process are shown in Table C105, followed by the examples of verbatim in Table C106.

**Table C105**

*Frequency of factors that influence team creativity mentioned during interviews*

<b>Negative/Hinder Category</b>	<b>Frequency</b>	<b>Leaders (N=33)</b>
<b>Lack of Team creative process</b>	<b>27</b>	<b>12</b>
<b>Subcategory-level 1</b>		
<b>Lack of research and review process</b>	<b>17</b>	<b>7</b>
<b>Subcategory-level 2</b>		
Lack of proper design review process	5	1
Restrictions on market survey to make new products	4	2
Didn't do in depth research on customer	3	2
Didn't talk with real user/operation who face the problem	3	1
Only get requirement from the User without process	2	1

(n=33)

Table C106

*Examples of verbatim for Lack of Team creative process – Lack of research and review process*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
Lack of Team creative process	Lack of research and review process	Lack of proper design review process	<b>Scott:</b> but the designer was very keen, very enthusiastic, quite creative and had a support team <b>but didn't follow our process. So, we didn't have proper design review.</b>
		Restrictions on market survey to make new products	<b>Nine:</b> What is the limit that tells him like the first project that I said, is it a matter of improvement, Customer specification to existing products, it is not easy to do, <b>when a project has other restrictions, restrictions on customers and market survey to make new products out and hit the market.</b>
		Didn't do in depth research on customer	<b>Japan:</b> But the things even we do this survey. But in my mind, I mean, I learned from this project that everyone. I mean, everyone would like to improve their sale and improve their skill, not only the customer
		Didn't talk with real user/operation who face the problem	<b>Kietsakul:</b> <b>I didn't talk to the operation, didn't talk to people who really had problems,</b> just deploy, I didn't get feedback from people who would actually use it. Where do we make adjustments, things like this, oh, so I don't know how we're going to answer him because I haven't talked to him, haven't talked to him directly.
		Only get requirement from the User without process	<b>Boy:</b> The previous project, is to only get the requirements and then follow the requirements without coming to think about whether the requirement is really necessary or not...

### Subcategory-level 1: Lack of engagement

The subfactors of Lack of engagement are shown in Table C107, followed by the examples of verbatim in Table C108.

**Table C107**

*Frequency of factors that influence team creativity mentioned during interviews*

Negative/Hinder Category	Frequency	Leaders (N=33)
<b>Lack of Team creative process</b>	<b>27</b>	<b>12</b>
<b>Subcategory-level 1</b>		
<b>Lack of engagement</b>	<b>4</b>	<b>3</b>
<b>Subcategory-level 2</b>		
Lack of engagement	3	2
Collaborate without structure	1	1

(n=33)

**Table C108**

*Examples of verbatim for Lack of Team creative process – Lack of engagement*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Lack of Team creative process</b>	<b>Lack of engagement</b>	Lack of engagement	<b>Kietsakul:</b> It's low engagement in team
		Collaborate without structure	<b>Amadeus:</b> For me personally than the collaboration aspect and actually getting together to do things together just because and just because you think that. That's better, and we're going to have better results from that, because when you put people in in in the same room or currently when we're online, we're all in the same screen looking at the same thing. And we are judging people like doesn't mean that we that we want it, but we are doing that. We are judging people's ideas internally in our heads. And I think when you do put people together and it's like. <b>Here now, we have one hour to collaborate, and we're going to do this. A lot of people are blocked by that. A lot of people are. People just freeze. It's like everyone is looking at it at each other and it's like, Oh, OK, what are we going to do now?</b>

### Subcategory-level 1: Other negative factors in Lack of Team creative process

Team leaders have identified “Creativity/ideas cannot be forced to think about”, “People process technology not support”, and “Gap between creativity and execution” as the other negative factors of Lack of Team creative process category as shown in Table C109.

**Table C109**

*Examples of verbatim for Lack of Team creative process – Creative/ideas cannot be forced to think about*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Lack of Team creative process</b>	Creativity/ideas cannot be forced to think about	Creativity/ideas cannot be forced to think about	<b>Matthew:</b> Sometimes, like, yeah, people think too much, and your kind of. That's why they say, like, take a break. And sometimes, like, you're creative, you're trying to be creative. But at the time in depending on multiple factors that are happening in your life, sometimes you just can't think. So, the best thing to do is just do something else and you in the subconsciously be thinking about it. But doing something else kind of also helps you think differently
	People process technology not support	People process technology not support	<b>Ekkachat:</b> Creativity is the application of technology, right? But it's about people, processes, it doesn't support people, knowledge doesn't reach the process, management is bad, what's wrong is an obstacle, it's a matter of people. People process technology
	Gap between creativity and execution	Gap between creativity and execution	<b>Aof:</b> The GAP between creativity or creative thinking and the actual execution process is that it fails because part is in high creativity, but it's not realistic or doesn't keep ongoing...

### Not clear goals and direction

The team leaders mentioned Not clear goals and direction as the second important factors during the interviews. Table C110 shows the subfactor and examples of verbatim.

**Table C110**

*Examples of verbatim for Not clear goals and direction*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Not clear goals and direction</b>	-	Not clear goals and direction	<b>Liam:</b> Like we basically we have three people full time client, <b>but also that their direction was very unclear</b> and it seemed like things that they like before. Their direction would change basically from week to week, and that made it very difficult for the team. So, it created an environment.

### Bad team learning

The team leaders mentioned Bad team learning as the third important factors during the interviews. Table C111 shows the subfactors and examples of verbatim.

**Table C111**

*Examples of verbatim for Bad team learning*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Bad team learning</b>	-	Didn't use the pool of knowledge and resources in the firm	<b>Scott:</b> They didn't have <b>they didn't use the resources of the firm and the knowledge that we had in firm</b> that they thought they were smart and could do it by themselves and. Then they went and presented to the client this hotel and that, very proud of it. And we had never reviewed it internally.
		If they are afraid to make a mistake, that limits creativity	<b>Pawel:</b> they're afraid to make a mistake, then that limits creativity.

		Not learn from each other	<b>Japan:</b> I think we are not learn from each other if we learn from each other. I think the project may be more successful
		Team members was refusing to learn new things	<b>Anthony:</b> Team learning. People was refusing to learn. <b>Absolutely refusing to learn.</b>

### Related to client

The team leaders mentioned Related to client as the fourth important factors during the interviews. Table C112 shows the subfactors and examples of verbatim.

**Table C112**

*Examples of verbatim for Related to client*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
Related to client	-	Clients don't have clear idea of what they want	<b>Ben:</b> I've noticed in Thailand also, is that when people are trying to do creative projects, they don't ask why. They don't understand truly what they're trying to achieve and why they're trying to do it. So that's usually when things go wrong.
		Client Language barrier	<b>Scott:</b> Communication in another language. They didn't. When I able to communicate with the client, they thought they knew. But it was in Vietnam, so they couldn't speak Vietnamese. So, okay, so there was like an issue of client of communication, but they could have just taken one of the other staff to the meeting.

### Resistance to change

The team leaders mentioned Resistance to change as the fifth important factors during the interviews. Table C113 shows the subfactors and examples of verbatim.

**Table C113**

*Examples of verbatim for Resistance to change*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Resistance to change</b>	-	Designer don't want to change to new software (BIM)	<b>Pawel:</b> And usually the good designers, the creative designers are on the camp that don't want to change because they don't see BIM as helping them be being creative. They see BIM as just helping to do drawings.
		Project is creative but unable to overcome the mindset of ppl	<b>Chu:</b> I don't want to say that this project fails because of the lack of creativity since it has creativity but can't overcome the mindset, including the continuity policy of use, which is the mindset of society.

### Did the old same things

The team leaders mentioned Did the old same things as the sixth important factors during the interviews. Table C114 shows the subfactors and examples of verbatim.

**Table C114**

*Examples of verbatim for Did the old same things*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Did the old same things</b>	-	Did the old same things	<b>Ken:</b> Thinking that he did in the same things, it doesn't come up with new ideas...



### Lead to conflicts

The team leaders mentioned Lead to conflicts as the seventh important factors during the interviews. Table C115 shows the subfactors and examples of verbatim.

**Table C115**

*Examples of verbatim for Lead to conflicts*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
Lead to conflicts	-	Didn't get along with other team	<b>Matthew:</b> it could be, they could be a particular time where like your creative team that works with the production team aren't getting along.
		Toxicity between people	<b>Hadrien:</b> no reason people were burning burnout and everything is just because of the toxicity between the people. That's it

### My team didn't go to the same direction

The team leaders mentioned My team didn't go to the same direction as the eighth important factors during the interviews. Table C116 shows the subfactor and examples of verbatim.

**Table C116**

*Examples of verbatim for My team didn't go to the same direction*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
My team didn't go to the same direction	-	My team didn't go to the same direction	<b>Anthony:</b> There we go again.. This German company. They thought they knew everything, and there was nothing that I could tell them what I wanted to do. And they started to do something else. I wanted to go left and they go right. I wanted to go up. They went down and everything that I came up with, it was absolutely disaster.

### Too big project that we can't take on

The team leaders mentioned Too big project that we can't take on as the nine important factors during the interviews. Table C117 shows the subfactor and examples of verbatim.

**Table C117**

*Examples of verbatim for Too big project that we can't take on*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Too big project that we can't take on</b>	-	Too big project that we can't take on	<b>Nipaporn:</b> It will be that we think of a project that is as big as it is. It's too big for us. We think we shouldn't be able to complete it in 1 year.

### Low cohesion

The team leaders mentioned Low cohesion as the tenth important factors during the interviews. Table C118 shows the subfactor and examples of verbatim.

**Table C118**

*Examples of verbatim for Low cohesion*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
<b>Low cohesion</b>	-	Low cohesion	<b>Scott:</b> I'd say team cohesion. Well, there wasn't really much cohesion because they kind of just did themselves.

### **They need to survive in this project**

The team leaders mentioned They need to survive in this project as the eleventh important factors during the interviews. Table C119 shows the subfactor and examples of verbatim.

**Table C119**

*Examples of verbatim for They need to survive in this project*

<b>Category</b>	<b>Unified Negative factors (Second-order coding)</b>	<b>First-order coding</b>	<b>Examples of Verbatim</b>
<b>They need to survive in this project</b>	-	They need to survive in this project	<b>Liam:</b> I think just the team kind of they all felt like they were fighting a war in the trenches, so to speak. So they would come up with creative ways to help each other survive in this type of project. So it was a collaboration in that way that affected negatively the creative outcome.

## 6. TIME (Negative/Hinder)

### Time Pressure as Negative factors

Team leaders have identified “Limited timeframe”, and “Didn't have enough time for experiments” for the negative factors of Time pressure category as shown in Table C120.

**Table C120**

*Examples of verbatim for Time pressure*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
Limited Timeframe	-	Limited timeframe	<b>Matthew:</b> Because, again, this is usually projects fail because of the <b>short deadlines</b> and not just yeah. Not being able to do process. So that would affect all the processes. And sometimes you would have to compromise a job and skip a process based on the time pressure.
Didn't have enough time for experiments	-	Don't have enough time for brainstorming or Design thinking	<b>Liam:</b> But it just because there wasn't time for <b>it wasn't a lot of time for the brainstorming or the design thinking</b> . Because it just had to focus on output.
		Have their routine jobs, don't have time for brainstorming ideas	<b>Ken:</b> He has other work to do, maybe he <b>doesn't have time to develop to help brainstorm</b> , so he can't continue because he has his <b>routine job</b> .
		Time to get to implement these ideas/decision making is long	<b>Api:</b> We start. But we cannot clear them because when we start this, what they do doing and we offer this to our brand, to marketing team or to the GM of the brand, <b>they're thinking quite long</b> and at that past is <b>longer than our period that we can do this kind of this campaign</b> . Then we have to change in another campaign. <b>So the period of thinking about may take time. And when it takes time, we cannot complete that kind of campaign and we cannot list the target as we can get it.</b>

## High longevity reduces creativity and productivity

The subfactor and the examples of verbatim of High longevity are shown in

Table C121.

**Table C121**

*Examples of verbatim for High longevity*

Category	Unified Negative factors (Second-order coding)	First-order coding	Examples of Verbatim
High longevity	-	High longevity reduce creativity and productivity	<p><b>Japan:</b> if we know each other more. Yes, I think short may be better because <b>if we know is that for a long, we have the mental things</b> to be inside the work, that mental thing. And I'm not say that's not good. <b>But sometimes if we have the moral support of the thing that somehow my side not working so much and we care each other, but sometimes it's care, and Kind is not the good way to finish the things.</b> But if we're know each other for long ok can we not only colleague , but we will be friends, but sometimes the mistake and some kind for forgive them. But forgive it's good I'm not say not good. <b>But sometimes if we very close together, it's hard to order.</b></p> <p><b>Amadeus:</b> If you have the same team working for too long and you don't have input of new ideas or new members joining the team, adding new perspectives and an ideas, <b>I think. The creativity will maybe go up and be stable over a certain amount of time, but maybe it will also decline at the end.</b></p>

**Appendix D: Consent Form and Interview Guide (English and Thai)**



Dear Sir/ Madam,

My name is Sudapa Chompunuch, a dual PhD student in knowledge management and innovation management at Institute for Knowledge and Innovation Southeast Asia (IKI-SEA, Bangkok University) and Universite Grenoble Alpes (France). I am under the PhD supervision of Associate Professor Dr. Vincent Ribiere. I am currently collecting data for my PhD dissertation. My research focuses on creativity in teams and how to identify the factors related to it.

You are invited to participation in a research study which is to be conducted as part of a Doctor of Philosophy degree at Bangkok university and Universite Grenoble Alpes. The attached document will assist you decide whether you want to take part in the study. The selection of interviews was based on teams (leaders) in your organization in relation to creativity and innovation. The purpose of this study (interview) is to identify the situations (incidents) where your team displayed some level of creativity by collaboratively coming up with novel ideas. The interview data will remain confidential and will only be used for the purpose of this research. Respondents' data will be compiled together and analyzed and reported by group. The interview will take about 1 hour via zoom meeting and will be recorded for facilitating its transcription and analysis.

Please find the attached

1. Consent Form
2. Interview Guide (English and Thai)
3. About research project

Thank you very much for your consideration and support.

Best Regards,

**Sudapa Chompunuch (PhD students)**

Sudapa.chom@gmail.com

**Associate Professor Dr. Vincent Ribiere**

PhD student Advisor and PhD KIM Program Director

Vincent.r@bu.ac.th



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MANAGEMENT  
BANGKOK UNIVERSITY



## ใบยินยอมเข้าร่วมการวิจัย (Consent Form)

โครงการวิจัยเรื่อง: **EXPLORING THE CONCEPT AND PRACTICES OF TEAM CREATIVITY THROUGH A CRITICAL INCIDENTS APPROACH**

วันที่ให้คำยินยอม วันที่..... เดือน.....พ.ศ.....

1. ก่อนที่จะลงนามในใบยินยอมให้ทำการวิจัยนี้ ข้าพเจ้าได้รับการอธิบายจากผู้วิจัยถึงวัตถุประสงค์ของการวิจัย วิธีการวิจัย และมีความเข้าใจดีแล้ว
2. ผู้วิจัยรับรองว่าจะตอบคำถามต่าง ๆ ที่ข้าพเจ้าสงสัยด้วยความเต็มใจ ไม่ปิดบังซ่อนเร้นจนข้าพเจ้าพอใจ
3. ข้าพเจ้ามีสิทธิ์ที่จะบอกเลิกการเข้าร่วมโครงการวิจัยนี้เมื่อใดก็ได้ และเข้าร่วมโครงการวิจัยนี้โดยสมัครใจ
4. ผู้วิจัยรับรองว่าจะเก็บข้อมูลเฉพาะเกี่ยวกับตัวข้าพเจ้าเป็นความลับ จะเปิดเผยได้เฉพาะในรูปที่เป็นสรุปผลการวิจัย การเปิดเผยข้อมูลของตัวข้าพเจ้าต่อหน่วยงานต่าง ๆ ที่เกี่ยวข้องต้องได้รับอนุญาตจากข้าพเจ้าแล้วจะกระทำไปเฉพาะกรณีจำเป็นด้วยเหตุผลทางวิชาการเท่านั้น
5. ข้าพเจ้าได้อ่านข้อความข้างต้นแล้ว และมีความเข้าใจดีทุกประการ และได้ลงนามในใบยินยอมนี้ด้วยความเต็มใจ

ลงนาม.....ผู้ยินยอม

(.....)

ลงนาม..... พยาน

(.....)

ลงนาม..... ผู้ทำวิจัย

(.....)





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**EXPLORING THE CONCEPT AND PRACTICES OF TEAM CREATIVITY  
THROUGH A CRITICAL INCIDENTS APPROACH**

**INTERVIEW CONSENT FORM:**

**Consent to be interviewed by the Researcher: Please initial boxes below**

I confirm that I have read / had read to me the leaflet, about this research project and I understand the content.

I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason.

I understand that the interview will be recorded and written out word-for-word later. The recording will be securely stored in accordance with the Data Protection Act.

I understand that anything I say will be treated confidentially and only used for research purposes, in accordance with the Data Protection Act.

I agree to take part in the  
**EXPLORING THE CONCEPT AND PRACTICES OF  
TEAM CREATIVITY THROUGH A CRITICAL INCIDENTS APPROACH**  
research study



Name of participant

Date

Signature

Name of researcher

Date

Signature



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**EXPLORING THE CONCEPT AND PRACTICES OF TEAM CREATIVITY  
THROUGH A CRITICAL INCIDENTS APPROACH**

**INTERVIEW CONSENT FORM:**

**Consent to be interviewed by the Researcher: Please initial boxes below**

ข้าพเจ้ายืนยันว่าได้อ่าน / ใบบปลิวเกี่ยวกับโครงการวิจัยนี้แล้วและข้าพเจ้าเข้าใจเนื้อหา

ข้าพเจ้าเข้าใจว่าการเข้าร่วมวิจัยครั้งนี้เป็นไปโดยสมัครใจและ สามารถบอกเลิก  
ได้ตลอดเวลาโดยไม่ต้องให้เหตุผล

ข้าพเจ้าเข้าใจว่าการสัมภาษณ์จะถูกบันทึกและเขียนออกมาคำต่อคำในภายหลัง  
การบันทึกจะถูกเก็บไว้อย่างปลอดภัยในตามกฎหมายว่าด้วยการคุ้มครองข้อมูล

ข้าพเจ้าเข้าใจว่าทุกสิ่งๆที่ข้าพเจ้าพูดจะถูกรักษาเป็นความลับและ  
ใช้เพื่อการวิจัยเท่านั้นตามพระราชบัญญัติคุ้มครองข้อมูล

ข้าพเจ้าตกลงที่จะเข้าร่วมในการศึกษาวิจัย

**EXPLORING THE CONCEPT AND PRACTICES OF  
TEAM CREATIVITY THROUGH A CRITICAL INCIDENTS APPROACH**

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ชื่อผู้เข้าร่วมวิจัย

Date

Signature

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ชื่อผู้วิจัย

Date

Signature

**1 copy for participant; 1 copy for researcher**



## Interview Guide (Employing Critical Incident Technique)

### Introductory

My name is Sudapa Chompunuch. I'm a PhD student at Bangkok University and University of Grenoble Alpes. My research focuses on creativity in teams and how to identify the factors related to it. The purpose of this interview is to identify the situations (incidents) where your team displayed some level of creativity by collaboratively coming up with novel ideas.

We believe you are especially well qualified to tell us about triggers of creativity in teams. The interview data that will be collected today will remain confidential and will only be used for the purpose of this research and will not be shared with anyone. Respondents' data will be compiled together and analyzed and reported by group. You can decide to stop the interview at any time if you feel the need to do so and the data not to be considered for this research. This interview will take about 1 hour.

I would like to ask your permission to record this interview so it will facilitate its transcription and analysis. The recording will be deleted afterward.

Thank you very much for your consideration and support.

Do you have any question before we start the interview?

**Name of participant:**

**Gender:**

**Age:**

**Nationality:**

**Job Title:**

**Company:**

**Years of experience:**

**Size of team:**

**Email:**

**Position in the team:**

Could you please introduce your team (activities, composition, how many members, how long you are working together ...)?

What type of creative process or methodology does your team use?

What role does creativity play in your team project?

Please think of a recent team project that you worked on that was successful. Please describe a specific time when your team demonstrated some high level of creativity by coming up with a very novel idea or solution (new products, services, processes, or problem solving).

1. Please describe this experience in as much detail as you can remember
2. Describe as precisely as possible what triggered and stimulated the creativity of your team?
3. How can you explain that the team was so creative for that project? What did the team do differently from other project that led to more creative output?
4. For this particular project, would you think that the team composition (personality, diversity, competencies etc.) contributed to generating these novel ideas? If so, in which ways?
5. For this particular project, would you think that team structure/team leadership (team size, task and goal interdependence, leader effectiveness etc.) contributed to generating these novel ideas? If so, in which ways?
6. For this particular project, would you think that the organizational/contextual factors (i.e., cultural influence on team) contributed to generating these novel ideas? If so, in which ways?  
\*The extent to which team members cooperate and work interactively to complete tasks and cultural influence on team.
7. For this particular project, would you think that team creative process (idea generation, communication, and collaboration within team) contributed to generating these novel ideas? If so, in which ways?
8. For this particular project, would you think that team climate/cohesion (trust, psychological safety, shared mental models, team identification) contributed to generating these novel ideas? If so, in which ways?

\*Team identification refers to the perception of belonging to a group, which helps team members feel their fate is closely linked with that of the team (Mael & Ashforth, 1992, p.104). Team psychological safety: members feel safe to express their ideas without losing face so team members feel accepted and respected.

9. For this particular project, would you think that team learning such as knowledge sharing contributed to generating these novel ideas? If so, in which ways?
10. For this particular project, would you think that team longevity which refers to the length of time (how long) the members have worked and shared experiences together, contributed to generating these novel ideas? If so, in which ways?
11. For this particular project, would you think that time pressure contributed to generating these novel ideas? If so, in which ways?
12. Could you think of any other potential factors that may have led to these novel ideas?

Dimensions	To which extent do you think that the following dimensions contributed to your team creativity						
	To an Extremely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderate Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent
1. Team Composition	1	2	3	4	5	6	7
2. Team structure/Team leadership	1	2	3	4	5	6	7
3. Organizational/ Contextual factors	1	2	3	4	5	6	7
4. Team creative process	1	2	3	4	5	6	7
5. Team climate/ cohesion	1	2	3	4	5	6	7
6. Team learning	1	2	3	4	5	6	7
7. Team longevity	1	2	3	4	5	6	7
8. Time pressure	1	2	3	4	5	6	7
9. Others ...	1	2	3	4	5	6	7

Please think of a recent team project that you worked on that was not so successful. Please describe a specific time when your team demonstrated some low level of creativity by coming up with not so novel idea or solution (new products, services, processes, or problem solving).

1. Please describe this experience in as much detail as you can remember
2. Describe as precisely as possible what hindered the creativity of your team?
3. How can you explain that the team was not creative for that project? What did the team do differently from other project that led to less creative output?
4. For this particular project, would you think that the team composition (personality, diversity, competencies etc.) contributed to generating not so novel ideas? If so, in which ways?
5. For this particular project, would you think that team structure/team leadership (leader effectiveness, task and goal interdependence, team size etc.) contributed to generating not so novel ideas? If so, in which ways?
6. For this particular project, would you think that the organizational/contextual factors (i.e., cultural influence on team) contributed to generating not so novel ideas? If so, in which ways?
7. For this particular project, would you think that team creative process (idea generation, communication, and collaboration within team) contributed to generating not so novel ideas? If so, in which ways?
8. For this particular project, would you think that team climate/cohesion (trust, psychological safety, shared mental models, team identification) contributed to generating not so novel ideas? If so, in which ways?  
 Team identification refers to the perception of belonging to a group, which helps team members feel their fate is closely linked with that of the team (Mael & Ashforth, 1992, p.104). Team psychological safety: members feel safe to express their ideas without losing face so team members feel accepted and respected.
9. For this particular project, would you think that team learning such as knowledge sharing contributed to generating not so novel ideas? If so, in which ways?

10. For this particular project, would you think that team longevity which refers to *the length of time (how long) the members have worked and shared experiences together*, contributed to generating not so novel ideas? If so, in which ways?
11. For this particular project, would you think that time pressure contributed to generating not so novel ideas? If so, in which ways?
12. Could you think of any other potential factors that may have led to not so novel ideas?

Dimensions	To which extent do you think that the following dimensions contributed to your low team creativity						
	To an Extremely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderate Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent
1. Team Composition	1	2	3	4	5	6	7
2. Team structure/Team leadership	1	2	3	4	5	6	7
3. Organizational/ Contextual factors	1	2	3	4	5	6	7
4. Team creative process	1	2	3	4	5	6	7
5. Team climate/ cohesion	1	2	3	4	5	6	7
6. Team learning	1	2	3	4	5	6	7
7. Team longevity	1	2	3	4	5	6	7
8. Time pressure	1	2	3	4	5	6	7
9. Others ...	1	2	3	4	5	6	7

- Could you please recommend someone (from your company or other company) else to interview?



## คู่มือสัมภาษณ์ (การใช้เทคนิคเหตุการณ์วิกฤต)

### แนะนำเบื้องต้น

ดิฉันชื่อ สุดาภา ชมภูษุช เป็นนักศึกษาปริญญาเอกมหาวิทยาลัยกรุงเทพ และมหาลัยเกรอนอป แอลป์งานวิจัยที่กำลังดำเนินการอยู่นั้นมุ่งเน้นไปที่การศึกษาเกี่ยวกับความคิดสร้างสรรค์ของทีม และวิธีการระบุปัจจัยต่างๆที่เกี่ยวข้อง วัตถุประสงค์ของการสัมภาษณ์ในครั้งนี้ เพื่อระบุสถานการณ์ (เหตุการณ์) ที่ทีมของคุณแสดงออกด้านความคิดสร้างสรรค์โดยการร่วมกันแสดงความคิดเห็นและไอเดียใหม่ ๆ

ดิฉันเชื่อว่าคุณมีคุณสมบัติเหมาะสมอย่างยิ่งที่จะ (ให้ข้อคิดเห็น/แสดงความคิดเห็น) เกี่ยวกับปัจจัยที่กระตุ้นความคิดสร้างสรรค์ในทีม ข้อมูลการสัมภาษณ์ที่จะรวบรวมในวันนี้จะถูกเก็บเป็นความลับ และจะถูกใช้ตามวัตถุประสงค์ของงานวิจัยนี้เท่านั้นและจะไม่ถูกเปิดเผยให้กับผู้ใด ข้อมูลของผู้ตอบจะถูกรวบรวม วิเคราะห์และรายงานแบบกลุ่ม คุณสามารถตัดสินใจที่จะหยุดการสัมภาษณ์ได้ทุกเมื่อ หากคุณรู้สึกว่าเป็นต้องทำเช่นนั้นและข้อมูลจะไม่ถูกนำไปประกอบการพิจารณาสำหรับงานวิจัยนี้ การสัมภาษณ์นี้จะใช้เวลาประมาณ 1 ชั่วโมง

ดิฉันขออนุญาตบันทึกบทสัมภาษณ์นี้เพื่อความสะดวกในการถอดความและวิเคราะห์ การบันทึกจะถูกลบหลังจากนั้น

ขอบคุณมากสำหรับการพิจารณาและการสนับสนุนของคุณ

คุณมีคำถามใด ๆ ก่อนที่เราจะเริ่มสัมภาษณ์หรือไม่?

ชื่อผู้เข้าร่วม:

เพศ:

อายุ:

สัญชาติ:

ตำแหน่งงาน:

บริษัท:

ประสบการณ์ทำงาน :

ขนาดทีม :

อีเมล:

ตำแหน่งในทีม:



คุณช่วยแนะนำทีมของคุณหน่อยได้ไหมคะ (กิจกรรมหลักของทีม, องค์ประกอบของทีม, มีสมาชิกกี่คน, คุณทำงานร่วมกันนานแค่ไหน...)?

ทีมงานของคุณใช้กระบวนการหรือวิธีการสร้างสรรค์ประเภทใด?

ความคิดสร้างสรรค์มีบทบาทอย่างไรในโครงการของทีมคุณ?

**โปรดนึกถึงโครงการของทีมล่าสุดที่คุณทำแล้วประสบความสำเร็จ โดยโปรดอธิบายช่วงเวลาที่คุณ  
แสดงความคิดสร้างสรรค์ในระดับสูงด้วยแนวคิดหรือวิธีการแก้ปัญหาที่แปลกใหม่ (ผลิตภัณฑ์,  
บริการ, กระบวนการ, หรือการแก้ปัญหาใหม่ ๆ)**

1. โปรดอธิบายประสบการณ์นี้โดยละเอียดเท่าที่คุณจะทำได้
2. อธิบายให้ชัดเจนที่สุดว่าอะไรกระตุ้นความคิดสร้างสรรค์ในทีมของคุณ?
3. คุณจะอธิบายได้อย่างไรว่าทีมมีความคิดสร้างสรรค์สำหรับโครงการนี้ ทีมงานทำอะไรแตกต่างจากโครงการอื่นที่นำไปสู่ผลงานสร้างสรรค์มากขึ้น?
4. สำหรับโครงการนี้ คุณคิดว่าองค์ประกอบของทีม (บุคลิกภาพ, ความหลากหลายของสมาชิกในทีม, ความสามารถของสมาชิกในทีม ฯลฯ) มีส่วนทำให้เกิดแนวคิดแปลกใหม่ (ไอเดียความคิดสร้างสรรค์) เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?
5. สำหรับโครงการนี้ คุณคิดว่าโครงสร้างทีม/ความเป็นผู้นำของทีม (เช่น ขนาดของทีม และประสิทธิภาพของผู้นำ ฯลฯ) มีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?
6. สำหรับโครงการนี้ คุณคิดว่าปัจจัยองค์กร/บริบท (เช่น สภาพแวดล้อมในการทำงาน, อิทธิพลทางวัฒนธรรมในทีม) มีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?
7. สำหรับโครงการนี้ คุณคิดว่ากระบวนการสร้างสรรค์ของทีม (กระบวนการสร้างความคิด idea generation, การสื่อสาร และการทำงานร่วมกันภายในทีม) มีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?
8. สำหรับโครงการนี้ คุณคิดว่าบรรยากาศของทีม/การทำงานร่วมกัน (ความไว้วางใจกันในทีม, การมีจุดประสงค์ร่วมกัน, การกล้าที่จะแสดงความคิดเห็นในทีม) มีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?
9. สำหรับโครงการนี้ คุณคิดว่าการเรียนรู้เป็นทีมเช่น การแบ่งปันความรู้ มีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?
10. สำหรับโครงการนี้ คุณคิดว่าระยะเวลา ที่สมาชิกได้ทำงานและแบ่งปันประสบการณ์ร่วมกัน มีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่ ถ้าเป็นเช่นนั้น ในทางใด?

11. สำหรับโครงการนี้ คุณคิดว่าแรงกดดันด้านเวลามีส่วนทำให้เกิดแนวคิดใหม่เหล่านี้หรือไม่?  
ถ้าเป็นเช่นนั้นในทางใด?

12. คุณนึกถึงปัจจัยอื่น ๆ ที่อาจนำไปสู่ความคิดแปลกใหม่ เหล่านี้ได้หรือไม่?

Dimensions	คุณคิดว่ามิติใดต่อไปนี้มีส่วนสนับสนุนความคิดสร้างสรรค์ในทีมของคุณ						
1 = น้อยที่สุด 7 = มากที่สุด	To an Extremely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderate Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent
1. องค์ประกอบของทีม	1	2	3	4	5	6	7
2. โครงสร้างทีม/ ความเป็นผู้นำของทีม	1	2	3	4	5	6	7
3. ปัจจัยองค์กร/บริบท	1	2	3	4	5	6	7
4. กระบวนการ สร้างสรรค์ของทีม	1	2	3	4	5	6	7
5. บรรยากาศของทีม/การ ทำงานร่วมกัน	1	2	3	4	5	6	7
6. การเรียนรู้เป็นทีม	1	2	3	4	5	6	7
7. ระยะเวลาที่ทำงาน ร่วมกันในทีม	1	2	3	4	5	6	7
8. แรงกดดันด้านเวลา	1	2	3	4	5	6	7
9. อื่น ๆ ...	1	2	3	4	5	6	7

โปรดนึกถึงโครงการของทีมล่าสุดที่คุณทำแล้วไม่ประสบความสำเร็จ โดยโปรดอธิบายช่วงเวลาที่คุณแสดงความคิดสร้างสรรค์ในระดับต่ำ ด้วยแนวคิดหรือวิธีแก้ปัญหาที่อาจจะไม่แปลกใหม่สัก (ผลิตภัณฑ์, บริการ, กระบวนการ, หรือการแก้ปัญหาใหม่ ๆ)

1. โปรดอธิบายประสบการณ์นี้โดยละเอียดเท่าที่คุณจะทำได้
2. อธิบายให้ชัดเจนที่สุดว่าจะอะไรเป็นอุปสรรคต่อความคิดสร้างสรรค์ของทีมคุณ?
3. คุณจะอธิบายได้อย่างไรว่าทีมไม่สร้างสรรค์สำหรับโครงการนี้ ทีมงานทำอะไรแตกต่างจากโครงการอื่นที่ทำให้ผลงานสร้างสรรค์น้อยลง?
4. สำหรับโครงการนี้โดยเฉพาะ คุณคิดว่าองค์ประกอบของทีม (บุคลิกภาพ, ความหลากหลายของสมาชิกในทีม, ความสามารถของสมาชิกในทีม ฯลฯ) มีส่วนทำให้เกิดความคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
5. สำหรับโครงการนี้โดยเฉพาะ คุณคิดว่าโครงสร้างทีม/ความเป็นผู้นำของทีม (ประสิทธิภาพของผู้นำ, ขนาดของทีม ฯลฯ) มีส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
6. สำหรับโครงการนี้ คุณคิดว่าปัจจัยองค์กร/บริบท (เช่น สภาพแวดล้อมในการทำงาน, อิทธิพลทางวัฒนธรรมในทีม) ส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
7. สำหรับโครงการนี้ คุณคิดว่ากระบวนการสร้างสรรค์ของทีม (กระบวนการการสร้างความคิด idea generation, การสื่อสาร และการทำงานร่วมกันภายในทีม) มีส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
8. สำหรับโครงการนี้ คุณคิดว่าบรรยากาศของทีม/การทำงานร่วมกัน (ความไว้วางใจกันในทีม, การมีจุดประสงค์ร่วมกัน, การกล้าที่จะแสดงความคิดเห็นในทีม) มีส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
9. สำหรับโครงการนี้ คุณคิดว่าการเรียนรู้เป็นทีมเช่น การแบ่งปันความรู้ มีส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
10. สำหรับโครงการนี้ คุณคิดว่าระยะเวลา ที่สมาชิกได้ทำงานและแบ่งปันประสบการณ์ร่วมกัน ส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
11. สำหรับโครงการนี้ คุณคิดว่าแรงกดดันด้านเวลาส่วนทำให้เกิดแนวคิดที่ไม่แปลกใหม่หรือไม่ ถ้าเป็นเช่นนั้นนั้นในทางใด?
12. คุณนึกถึงปัจจัยอื่น ๆ ที่อาจก่อให้เกิดความคิดที่ไม่แปลกใหม่ได้หรือไม่?

Dimensions	คุณคิดว่ามิติต่อไปนี้มีส่วนทำให้ความคิดสร้างสรรค์ในทีมต่ำมากน้อยเพียงใด						
1 = น้อยที่สุด 7 = มากที่สุด	To an Extremely Small Extent	To a Very Small Extent	To a Small Extent	To a Moderate Extent	To a Large Extent	To a Very Large Extent	To an Extremely Large Extent
1. องค์ประกอบของทีม	1	2	3	4	5	6	7
2. โครงสร้างทีม/ ความเป็นผู้นำของทีม	1	2	3	4	5	6	7
3. ปัจจัยองค์กร/บริบท	1	2	3	4	5	6	7
4. กระบวนการ สร้างสรรค์ของทีม	1	2	3	4	5	6	7
5. บรรยากาศของทีม/การ ทำงานร่วมกัน	1	2	3	4	5	6	7
6. การเรียนรู้เป็นทีม	1	2	3	4	5	6	7
7. ระยะเวลาที่ทำงาน ร่วมกันในทีม	1	2	3	4	5	6	7
8. แรงกดดันด้านเวลา	1	2	3	4	5	6	7
9. อื่น ๆ ...	1	2	3	4	5	6	7

- คุณช่วยแนะนำเพื่อนหรือคนรู้จัก (จากบริษัทของคุณหรือบริษัทอื่น) มาสัมภาษณ์ได้ไหมคะ?

### Appendix E: Software for Analyze and Coding ATLAS.ti

Code Manager

Analysis 1 Newest TCIM

+ 🗑️ No Grouping List 📄 📄 🔍 Search

📄 New 🗑️ Delete 📄 Grouping 📄 View Mode 📄 Export 🔍 Filter

🔍 Search ? Help 📄 Layout

☑️ Filter codes in group **Inputs +** 82

Codes	Groups	Comment	Create	Code Group
▶️ TEAM COMPOSITION	113		Suda	Members
▶️ TEAM LEADERSHIP	51		Suda	
▶️ COMPANY CULTURE	17	0 Good things, l...	Suda	<ul style="list-style-type: none"> <li>● COMPANY CULTURE</li> <li>○ COMPANY CULTURE: Coachi...</li> <li>○ COMPANY CULTURE: Cultur...</li> <li>○ COMPANY CULTURE: Positiv...</li> <li>○ COMPANY CULTURE: Strong...</li> <li>○ COMPANY CULTURE: Thai c...</li> <li>○ COMPANY CULTURE: Think...</li> <li>○ COMPANY CULTURE: We we...</li> <li>● GATE KEEPER, TIME KEEPER</li> <li>● GOAL ORIENTATION</li> </ul>
▶️ UNDERSTAND CONSTRAINTS	14	0 Good things, l...	Suda	
▶️ REWARD SYSTEMS	12	0 Good things, l...	Suda	
▶️ GOOD STRUCTURE	10	0 Good things, l...	Suda	
▶️ SIZE OF TEAM	7	0 Good things, l...	Suda	
● GATE KEEPER, TIME KEEPER	4	0 Good things, l...	Suda	10/5/23 17:11, merged with We have someone...
● PROJECT OWNERSHIP	3	0 Good things, l...	Suda	2 Taking ownership of the project 10/5/23 17:15,...
▶️ INTERDEPENDENCE	1	0 Good things, l...	Suda	
● WORKING SPACES FOR CREATIVE E...	1	0 Good things, l...	Suda	

Code Distribution by Document

Preview Charts

Status

Created: 16 August AD 2023  
Sudapa Chompunuch

Changed: 20 August AD 2023  
Sudapa Chompunuch

Comment

Click to add comment

**Code Manager**  
Analysis 1 Newest TCIM

+ v    Delete    No Grouping    Code Cloud    Export    Filter    Search    Help    Layout

Filter codes in group **Inputs +**    82

**UNDERSTAND CONSTRAINTS**  
**GOOD TEAM COMPOSITION: Good refined team composition**  
**TEAM DIVERSITY: Cross-functional team**  
**GOOD TEAM COMPOSITION**  
**TEAM DIVERSITY**  
Leader effectiveness    Good team leader  
**COMPANY CULTURE    INDIVIDUAL CREATIVITY**  
Good team leader: Good leadership  
**INDIVIDUAL CREATIVITY: Individual creativity**

Nothing selected

Code Distribution by Document    Preview    Charts

Document	Code Count
Boy.docx	10
Ken.docx	12
Vivan.docx	8
Moshi.docx	6
Chu.docx	4
Ekkachat.docx	10
Pom.docx	6
Pawinee.docx	10
Noi.docx	18
Ong.docx	8
Sai.docx	4

Quotations of Code TEAM DIVERSITY

Code View Options Delete

Search Search Layout

1:19 ¶ 48 in Boy.docx

องค์ประกอบ เพราะว่า ไอเดีย หลาย อย่าง ที่ เรา ทำ ขึ้น มา คือ ทีม ของ เรา ก็ จะ diverse หน่อย ไม่ได้ เป็น developer ทั้ง หมด ครับ แต่ ว่า ก็ จะ มี หลาย หน้า ที่ มา ซึ่ง พอ เรา มี คน ที่ ทำ หน้า ที่ แตก ต่าง กัน หลาย ๆ roles มา รวม กลุ่ม กัน ครับ มัน ก็ จะ มี ไอเดีย อะไร ที่ โหน มา คือ ผม ทำ งาน อยู่ ใน field data analyse คือ จะ ไม่ ต้อง มี ความ รู้ เรื่อง ของ business หรือ ว่า เรื่อง ของ development เลย นะ ครับ แต่ ว่า ฝั่ง Business ก็ เขา ก็ มี การ แชร ไอเดีย มา ซึ่ง บาง ที่ ผม ก็ ไม่ สามารถ คิด ขึ้น ได้ มา เอง ครับ แต่ พอ เขา แชร ไอเดีย เนี่ย ผม ก็ สามารถ เอา โดเมน ของ ผม มา ต่อ ยอด ไอเดีย เขา ต่อ ได้ ครับ ผม เลย คิดว่า diverse team มี ความ สำคัญ มาก นะ ครับ

1 coding

TEAM DIVERSITY: Cross

1:39 ¶ 122 in Boy.docx

ถ้า ทีม มี ความ หลาก หลาย ใน แต่ ละ คน ก็ จะ มี ไอเดีย อะไร ที่ ออก มา ก็ จะ รู้ สึก ว่า มัน แผลง ไป ก็ จะ สามารถ เอา กลับ ไป คอย กับ ลูก คำ ได้ ก็ ได้ เป็น ตัว ที่ ทำให้ เรา สามารถ กระตุ้น ให้ เกิด การ สร้าง สรรค์ ของ ทีม.

1 coding

TEAM DIVERSITY: Divers

2:4 ¶ 8 in Ken.docx

แต่ละคน ก็ จะ มี มี จุด เติ้น ต่าง กัน

1 coding

TEAM DIVERSITY: Divers

2:13 ¶ 42 in Ken.docx

จริง ๆ ต้องการ ความ หลาก หลาย นะ คน ที่ ไป เจอ ไป ท่องเที่ยว บ่อยๆ หรือ ไป เห็น อะไร มาก ๆ จะ สร้างสรรค์ ได้ มาก กว่า ถ้า เกิด ว่า เขา ทำ งาน เป็น ลูทีน วัน 6 วัน ต่อ สัปดาห์ ก็ จะ ทำให้ เขา ไม่ เข้า ใจ หลายๆ อย่าง แล้ว ก็ ไม่ ตาม ไม่ ทั้น เฉพาะ คน ที่ เนะ นำ ที่ เมื่อ ก็ นอก นั้น ก็ คือ เขา เข้า ทำ งาน 6 วัน และ ไม่ ไป โหน เลย เขา ก็ จะ ไม่ เข้า ใจ ว่า เรา กำลัง พัฒนา อะไร ครับ.

1 coding

TEAM DIVERSITY: Mixing

2:22 ¶ 78 in Ken.docx

อัน ที่ 2 ก็ คือ จะ ต้อง มี จะ ต้อง มี อะไร เขา เรียก อะไร นะ know how ใหม่ ๆ เข้า มา ก็ เป็น เป็น จุด ต่อ ไอเดีย เช่น สมมุติ ว่า มี ของ มี ของ ที่ อยู่ ใน ท้อง ตลาด มา ใหม่ เรา ก็ ต้อง ไป ไป นำ มัน มา เพื่อ ที่ จะ มา เป็น ตัวอย่าง ไอเดีย การ พัฒนา ต่อ ไป ไม่ ไร เรา ก็ จะ ไม่ ได้ ไอเดีย ใหม่ ๆ ไม่ ใช่ สิ่ง ใหม่ ๆ ที่ คน อื่น เขา คิด แล้ว เรา มา ต่อ idea ต่อ จะ ไม่มี ทุก คน ก็ จะ เห็น แต่ สิ่ง เดิม ๆ ของ เขา

1 coding

TEAM DIVERSITY: Divers