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Hajer Zarrouk

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Hajer Zarrouk. The impact of problem-based learning methodology on learners of English for Academic Medical Purpose. Education. Université du Havre, 2016. English. NNT : 2016LEHA0025 . tel-01743769

HAL Id: tel-01743769

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THESE

**Pour obtenir le diplôme de doctorat
Spécialité (Langues et Littératures Etrangères- Didactiques des
Langues)**

Préparée au sein de l'Université du Havre

**The Impact of Problem-Based Learning Methodology on
Learners of English for Academic Medical Purposes**

**Présentée et soutenue par
Hajer Zarrouk**

**Thèse soutenue publiquement le (12 Septembre, 2016)
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Acknowledgements

Firstly, I would like to express my special appreciation and sincere gratitude to my supervisor Prof. Jean-Claude Bertin, for his continuous support of my PhD study. He has afforded me patience, guidance, encouragement and help along this journey. I have to admit that without his professional insight, I would not have been able to make this achievement. I would also like to thank my co-supervisor Dr. Bachira Tomeh, for her support and encouragement throughout my research as a dear friend and sister. I am further grateful to Dr. Cédric Sarré, my second co-supervisor, for his insightful comments, encouragement, as well as his valuable input.

Special thanks go to my colleague and friend Laisha Moodley, for her time and assistance during class observations, despite the teaching overload we experienced. Also, I am especially appreciative of her support and encouragement for my research. Her camaraderie as an office mate eased my mind and allowed me to improve my focus. I am grateful to my colleagues at the PYHC who provided depth for my research through their interviews. Sincere thanks to the students who volunteered as participants in this study and who committed themselves especially during quizzes and exams.

Finally, I would like to thank my family for their unconditioned love and support. I am grateful to my mother, for her prayers which have sustained me thus far. I thank my daughter Yasmine for being such a good girl, for her understanding and patience. My apologies to her for the unread stories and the time we could not spend together. Special thanks to my husband Ezzeddine for the sacrifices he has made; he has been a constant source of support. Last, but not least, a big thank you to my sons Iheb and Baha, for their love and understanding throughout.

Résumé

Le but de cette étude était de considérer la possibilité de la mise en œuvre de l'approche d'apprentissage par problèmes (APP), *Problem Based Learning (PBL)*, comme une méthodologie d'enseignement, épistémologiquement solide, pour enseigner l'anglais de spécialité (ASP), en particulier, dans le domaine académique de la médecine, *English for Academic Medical Purposes (EAMP)*. *PBL* est une méthodologie qui a pris naissance dans la médecine, le domaine des apprenants dans notre contexte, en 1963 et a proliféré dans d'autres domaines. Dans un premier temps, l'étude a examiné si *PBL* est compatible avec l'enseignement des langues et a cherché à déterminer les avantages que cette méthode peut apporter à l'enseignement de l'ASP. L'étude a également tenté de résoudre des problèmes d'apprentissage en anglais qui ont été identifiés dans les Collèges de Santé de l'Année préparatoire (Branche Féminine) au sein de l'Université de Hail, Arabie Saoudite. Une analyse des besoins a été menée dans l'institution pour mieux identifier ces problèmes d'apprentissage. Cette analyse a montré que (1) les apprenantes s'appuyaient surtout sur la mémorisation qui était le résultat des pratiques de l'institution; (2) elles ne possédaient pas les bonnes stratégies pour apprendre la langue et étaient passives; et (3) elles s'appuyaient trop sur leur langue maternelle (arabe) pour apprendre la langue anglaise (L2) ou pour comprendre leurs cours de médecine. En conséquence, *PBL* a été mis en œuvre pour déterminer si cette approche est capable de fournir une solution possible à la question, puisque *PBL* a été initialement mis en œuvre en médecine pour faire face à des problèmes similaires. Cela a entraîné un changement dans les niveaux macro-méthodologique et micro-méthodologique, comme Demaizière (1996 ; 66) les appelle. En d'autres termes, cela représente un changement dans les cours d'anglais et des théories d'apprentissage sous-jacentes, ainsi qu'une nouvelle vision des apprenants, des enseignants et leurs rôles et pratiques. Dans la partie empirique de cette étude, un plan de recherche a été mis en œuvre. Ce plan s'inscrit dans la posture épistémologique qui considère l'apprentissage d'une langue étrangère L2 comme un processus complexe non linéaire (DeBot et al, 2013; Larson-Freeman, 2007). En conséquence, une étude longitudinale a été menée avec 13 étudiantes qui ont été observées dans une période de 8 semaines au cours de cinq *PBL* tutoriels, qui a eu lieu pendant quinze séances. Au cours de ces quinze séances, les comportements ou les

indicateurs de l'autonomie des apprenantes ont été observées au niveau du groupe pour la première et la troisième session de chaque *PBL* tutoriel et au niveau individuel en deuxième session. Les données ont été recueillies au moyen d'une grille d'observation, des notes d'observation de terrain, des questionnaires, et un entretien avec les étudiantes. Les résultats de recherche ont indiqué que les étudiantes ont tiré profit du cours. En général, les résultats étaient en faveur de la mise en œuvre de cette approche dans l'enseignement de l'anglais médical. Ils ont également montré que *PBL* peut améliorer l'autonomie des apprenants ; leurs permettre de développer des stratégies d'apprentissage ; les aider à exploiter leurs compétences linguistiques ; et d'apprendre le contenu orienté vers leur domaine.

Abstract

The purpose of this study was to consider the implementation of Problem Based Learning (PBL) as an epistemologically sound teaching methodology to teach English for Specific Purposes (ESP) and particularly English for Academic Medical Purposes (EAMP). PBL is a methodology that originated in medicine, L2 learners' field of study in 1963 and proliferated into other fields. In this way, the study examined whether PBL is compatible with language teaching and determined the benefits that this methodology can bring to ESP. The study also attempted to solve problems with English learning that were identified in the Preparatory Year Health Colleges within Hail University, Saudi Arabia. A needs analysis was conducted in the institution to examine the English learning situation and better identify these learning problems. This analysis showed that (1) learners depended mostly on rote memorization that was the result of the institution's practices; (2) they did not possess the right strategies to learn the language and were teacher-dependent; and (3) they depended too much on their mother tongue (Arabic) to learn the English language (L2) or to understand their medical subjects. As a result, PBL was implemented to determine if it provided a possible solution to the issue, since PBL was originally implemented in medicine to cope with similar problems. This entailed a change in the macro-methodological and micro-methodological levels, as Demaizière (1996) called '*le niveau macromethodologique*' and '*le niveau micromethodologique*' (p.66). In other words, this represents a change in course materials and their underlying learning theories, as well as a new view of both learners and teachers and their relevant roles and practices. In the empirical part of this study, a research design was implemented that fits in with the epistemological stance and the view that L2 learning is a complex non-linear process (DeBot et al., 2013; Larson-Freeman, 2007). A longitudinal study was conducted with 13 students who were observed through a period of 8 weeks and over five PBL tutorials, which took place over fifteen sessions. During these fifteen sessions, learners' behaviors or indicators of autonomy were observed at the group level for the first and third session of each PBL tutorial and at the individual level in session 2. Data was collected using an observation scheme, observation field notes, questionnaires, and a focused interview. Research results indicated that the students benefited from the course. In general, the results favored the implementation of this

approach in teaching English for Academic Medical Purposes (EAMP). It also showed that PBL can improve learners' autonomy; enable learners to develop learning strategies; help learners harness their language skills; and learn content oriented to their field.

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List of Abbreviations

- CBI	- Content-Based Approaches to Instruction
- CERCL	- Le Cadre Européen Commun de Référence pour les Langues.
- CEFR	- Common European Framework of Reference
- CELTA	- Certificate in English Language Teaching to Adults
- CLIL	- Content and Language Integrated Learning
- CLT	- Communicative Language Learning
- DST	- Dynamic Systems Theory
- KSA	- Kingdom of Saudi Arabia
- EAP	- English for Academic Purposes
- EMAP	- English for Medical Academic Purposes (EMAP)
- EMI	- English-Medium Instruction
- EOP	- English for Occupational Purposes (EOP)
- ESP	- English for Specific Purposes
- GERAS	- Groupe d'étude et de Recherche en Anglais de Spécialité
- L2	- Second Language
- LAD	- Language Acquisition Device
- NA	- Needs Analysis
- PBL	- Problem Based Learning
- PBCLL	- Problem Based Content and Language Learning
- PSA	- Present Situation Analysis
- PY	- Preparatory Year
- PYHC	- Preparatory Year Health Colleges
- SFL	- Systemic Functional Linguistics
- SLA	- Second Language Acquisition
- SLD	- Second Language Development
- TALO	- <i>Text as a Linguistic Object</i>
- TAVI	- <i>Text as a Vehicle of Information</i>
- TBL	- Task Based Learning

- TSA	- Target Situation Analysis
- UOH	- University of Hail
- ZPD	- Zone of Proximal Development

General Introduction

Nunan (1992) defined research as “a systematic process of inquiry consisting of three components: (1) a question, problem, or hypothesis, (2) data, (3) analysis and interpretation of data” (p.3). To start with, the origin, feasibility, and purpose of the research question will be explained.

This study was stimulated by a desire to understand the reasons behind the students’ low level of English proficiency at the Preparatory Year Health Colleges (PYHC) within the University of Hail (UOH), Kingdom of Saudi Arabia (KSA), and to determine solutions to this current lack of proficiency. The students who finish high school and join the UOH usually have a very low level of English proficiency and poor learning strategies. Eventually, a foundation year, otherwise known as a preparatory year, was implemented in order to prepare these students to study their field subjects in English and to learn study skills in general. In the UOH, the PYHCs were established in 2012. However, several indicators suggest that this objective was not generally met, despite the students’ intensive exposure to the English language during the PYHC program (20 hours a week/ about 640 hours during the academic year, scheduled over four quarters). A quarter lasts eight weeks on average. This means that a student benefits from at least 640 hours during an academic year.

For a better understanding of the number of hours that the students study each year (without taking into account repeaters), we can look at the number of hours associated with each level in language proficiency as per Rivens-Mompean (2013). Rivens-Mompean gave a detailed explanation on the estimated number of hours a learner needs to attain a new level of proficiency in the English language based on the Common European Framework of Reference, *Le Cadre Européen Commun de Référence pour les Langues (CERCL)*;

Le nombre d’heures d’apprentissage nécessaires pour passer d’un niveau à un autre est ainsi estimé pour atteindre A1: 60-100 heures; A2: 100-120 heures; B1: 150-180 heures; B2 : 200-250 heures; C1: 250-300 heures; C2 horaire variable (Mompean, 2013, p. 61).

Although this comparison can have certain limitations since the Common European Framework of Reference (CEFR) is not used in the determination of levels in our institution, it can give an approximate picture of what can possibly be achieved after a number of hours. According to CEFR estimation, PYHC students should attain at least B2 Level (independent user) upon completing the 640 hours they take during the PYHC program, but this does not typically happen. Most of the students remain unable to use the language on their own, whether it is for reading, writing, or speaking, when they finish the program.

The problems that have been noticed are varied and interdependent. Some seem to be related to the learners themselves, such as the problem of attitude towards L2 learning, motivation, and learning strategies. Others are associated with the institution policy, which might include choice of textbooks and teaching materials. Eventually, this action research study was conducted in order to better understand and solve these problems. Harmer (2005) stated that “teachers sometimes embark on action research because there is a problem that is worrying them and they want to try to decide what to do about it” (p. 413). Cohen and Manion (2000) also explained that “the principle justification of the use of action research in the context of the school is improvement of practice” (p.192). This also makes the current study empirical. Stotsky and Mall (2005) explained that empirical research “focuses on the collection, analysis, and interpretation of data that can be sensed or experienced in some way, either to answer research questions, to test hypotheses derived from theories, and/or to develop hypotheses or theories” (p.6). According to the authors, empirical research can be qualitative or quantitative.

Within this framework, a needs analysis was conducted in order to probe into the difficulties and challenges hindering the students’ learning of the English language and come up with a diagnosis. This was the first step towards identifying a proper remedy and helping the students attain the required level of English language proficiency needed for their future studies.

This needs analysis (See Chapter 5) confirmed that the methodologies used by the institution encourage passive learning. It also showed that as a result of these methodologies, students rely on rote memorisation, have poor learning strategies, and greatly depend on translation of course materials into their mother tongue (Arabic) in

order to learn English or medical subjects in English. As a result, the possibility of implementing Problem-Based Learning (PBL) methodology to teach English for Medical Academic Purposes (EAMP) was considered.

PBL has been used for more than five decades in medical schools around the world and in other fields. It was first introduced in the 1960s in the medical schools in Canada, just like in the KSA context, as a reaction to the problem of rote-memorization. PBL achievements in the development of learners' self-directed skills, motivation, and knowledge have been widely reported in the literature (McLean *et al.*, 2006; Norman & Schmidt, 2000; Rhem, 1998; Savin-Baden & Major, 2011; Schmidt, Vermeulen, Land Der Molen & Henk, 2006). This methodology is also more likely to improve students' preparation for studying medicine in English and to help them develop the language of their field in terms of skills, concepts, and general content. The research question that emerges is therefore: *What is the impact of Problem Based Learning Methodology (PBL) on the learners of English for Medical Academic Purposes in PYHC's context?*

This question can be fitted in language didactics in general and in *didactique des langues de spécialité*, in particular, as it was presented by Rivens-Mompean (2013). Rivens-Mompean argued that the relationship between language didactics and *anglais de spécialité* has to be addressed.

Cette question reste d'ailleurs d'actualité et a fait l'objet d'un appel à contribution coordonné par le GERAS, qui souhaite questionner les « relations spécifiques qu'entretiennent « didactique des langues » et « anglais de spécialité ».
Il s'agit de réfléchir à la manière dont ces deux champs s'influencent mutuellement et de considérer dans quelle mesure ils peuvent contribuer à identifier le concept original de « didactique des langues de spécialité » puisque « la didactique des langues se penche à la fois sur les modes et les objets d'apprentissage ainsi que sur les méthodologies de leur enseignement » (p. 57).

This concern was also recently addressed by Sarré and Whyte (2016) who associated research in ESP learning/teaching with didactics.

These key terminological distinctions lead us to define the following position on research in ESP learning and teaching in France. This strand of ESP research is didactic by nature and clearly falls within the scope of *didactique des chercheurs* in so far as it

- (1) is a distancing and theorising process which seeks to analyse the way ESP teaching leads to learning,
- (2) draws on several contributive sciences,
- (3) takes a broader perspective than SLA, covering elements of both SLA and foreign language education (p. 150).

This research aims to put these discussed thoughts into practice through digging into epistemological bases of PBL as a teaching methodology of another discipline as well as into Second Language Acquisition (SLA) in order to theorize for the teaching of ESP and make it a sound practice.

The integration of a methodology from medicine to teach English for medical purposes, though, raises many issues, such as the compatibility of this methodology with English language teaching/ learning. It may be argued that just like Task-Based Learning (TBL) in L2 learning, this approach is rooted in action-based learning as indicated in the CEFR. It also has epistemological bases in social constructivism, experiential learning, and cognitivism (Barrows and Tamblyn, 1980; Boud and Feletti, 1991; Powell, 2006; Savin-Baden and Major, 2011). This methodology also shares a lot of the principles of Communicative Language Learning (CLT), such as learning in a meaningful way to the learner, learning for a purpose, and learning in context. Thus, it is epistemologically compatible with language learning. According to Newell's (2001) theory of interdisciplinary studies, the integration of ideas from one discipline to another is possible in language didactics if the transferred component is compatible with the target learning situation. Morin's (1994) concept of the migration of ideas from one discipline to another also legitimizes the initiative to implement PBL to teach EAMP.

This methodology is also based on problem scenarios that provide English for Specific Purposes (ESP) students with context, content, strategies and language related to their field of study. In the practices of ESP, it is desirable to use the methodologies of the target discipline; Dudley-Evans and St-John (1998) recommend that ESP should follow the methodology of the target discipline and make use of its activities. This argument will be further examined in Chapters 10 and 11 on ESP and PBL.

To answer the research question, the research object and epistemological stance will be defined and constructed, respectively. Demaizière and Narcy-Combes (2007) defined epistemology as the way knowledge should be constructed and managed in a given field and related scientific domains. They also outlined that an epistemological stance is how the researcher constructs his/her own scientific knowledge and selects what can help construct his/her research object.

L'épistémologie est la réflexion sur la construction et la gestion du savoir dans un domaine donné et dans son rapport avec les autres domaines de la réflexion scientifique. Nous serons encore plus larges en considérant que l'épistémologie s'intéresse aussi à la façon dont la connaissance se construit pour chaque individu ; c'est alors que le mot "positionnement" prend son sens (p. 4).

Part I: Theoretical Framework

Chapter 1: An Action Research Study

In this chapter, the purpose and applicability of action research will first be explained. The issue of action and reflection (*'Epistemic'* versus *'la Doxa'*) in this research method will be addressed, as well as how it works within language didactics. We will also present the different types of this method and their related cyclic processes. Finally, we will explain our stance and indicate the type which we will follow in this study.

1.1. Requirements and Applicability of Action Research

Action research imposes certain requirements and conditions which were outlined by Nancy-Combes (2005; 122) in a comprehensive list that we translated and summarized below:

- It has to be feasible; that is, *'possible and likely to work'*;
- The objective has to be carefully and precisely set;
- Any team is less likely to stick together forever, so an action research project should not exceed three years;
- It requires a flexible and energetic institutional setting;
- It requires collaboration and team-work, including individual attitude adjustments.
- Ethics are essential in keeping subjects anonymous and unthreatened;
- Subjects should be continuously monitored (e.g., keeping track of their work), but they should not feel threatened in any way;
- Action research has to be published.

From the third aforementioned condition, it may be inferred that collaboration is not without difficulties. While collaboration remains desirable, Nunan (1992) argued that it is not always possible, and, therefore, it is not a must in action research. Cohen and Manion (2000) also stated that action research “is usually (though not inevitably)

collaborative” (p.186). For instance, in this study, the initial intention was to work collaboratively with colleagues and the institution in general. However, in the dynamic context associated with this study, people change almost every year, conditions change, and the study had to be conducted on an individual basis.

Regarding the applicability of action research, Cohen and Manion (2000) provided a list of seven areas where action research can be used, with points 1, 2, and 4 cited as they are most relevant to this study and the research objectives:

1 teaching methods – replacing a traditional method by a discovery method

2 learning strategies- adopting an integrated approach to learning in preference to a single- subject style of teaching and learning

4 attitudes and values- encouraging more positive attitudes to work, or modifying pupils' value systems with regard to some aspect of life (p.194).

This study aimed to implement PBL methodology to teach English for Academic Medical Purposes in order to equip the learners with skills and strategies and change the concept of language learning in the institution. Eventually, action research fits the purposes of the study.

1.2. The Role of the Insider in Action Research and the Conflict between Action and Reflection

To better understand the role of the insider in action research, it is important to look at its origin as a research method. The origin of action research is often attributed to the German social psychologist, Kurt Lewin (Ellis, 1997; McDonough and McDonough, 1997; Nunan, 1992). Lewin conducted a study in the 1930s in a factory in Virginia, USA, which showed that when change came from management and was imposed on the workers, production fell. However, when it was initiated by workers themselves and workers were involved in decision-making, production increased. Lewin’s model shows the importance of the role of the ‘insider’ – the teacher in our context – in the development of a given situation. Similarly, in classroom action research, teachers play an important role in the improvement of practices.

In language didactics, Kemmis and Mc Taggart (1980, cited in Nunan, 1992) argued that the practitioner – in this study the classroom teacher – plays a key-role in decision-making and bringing changes into a system, stating that “those affected by planned changes have the primary responsibility for deciding on courses of critically informed action which seem likely to lead to improvement, and for evaluating the results of strategies tried out in practice” (pp. 17-18). Thus, action research is concerned with the real world practices inside the classroom, with the aim of achieving some improvements in these practices. In accordance with these claims, Cohen and Manion (2000) defined action research as “a small-scale intervention in the functioning of the real world and a close examination of the effects of such intervention” (p. 186). However, as it is clear in Kemmis and Mc Taggart’s statement, action is ‘critically informed’, which means it is associated with reflection. Similarly, Carr and Kemmis (1986) described action research as being “a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, and the situations in which the practices are carried out” (cited in McDonough & McDonough, 1997, p. 26). In line with these arguments, Bertin (2012) argued that knowledge should guide practice in action research in order to better benefit the learner¹. Beasley and Riordan (1989, cited in Nunan, 1996) suggested that action research is useful for teachers, researchers, and the teaching/ learning communities for providing practical, insightful, and well-informed solutions to the ‘immediate concerns’ of teachers.

- It begins with and builds on the knowledge that teachers have already accumulated.
 - It focuses on the immediate concerns of classroom teachers.
 - It matches the subtle organic process of classroom life.
 - It builds on the natural processes of evaluation and research which teachers carry out daily.
 - It bridges the gap between understanding and action by merging the role of researcher and practitioner .
 - It sharpens teacher’s critical awareness through observation, recording, and analysis of classroom events.
 - It helps teachers better articulate teaching and learning processes to their colleagues and interested community members.
 - It bridges the gap between theory and practice.
- (Beasley and Riordan cited in Nunan, 1989, p.180)

¹ “Comprendre pour mieux agir vers l’apprenant; regard plus tourné vers la médiation entre les savoirs et les apprenants” (slide 6).

Similarly, McDonough and McDonough (1997) argued that in action research, action is guided by the teacher's reflection on his/her everyday 'practice'.

Action and reflection have been not only juxtaposed, but amalgamated to provide a principled foundation for research by teachers: the whole, in other words, will be seen to be more than the sum of its two constituent parts. The argument hinges around the idea that reflecting on action allows the development of a critical distance from the real-time action itself (p.22).

Eventually, one issue that arises in action research is the conflict between action and reflection. Narcy-Combes (2010) recommended that teachers and researchers should take distance and have to be reflective.

La didactique est une science humaine qui n'offre que des pistes pour l'action conceptualisée (Develay, 2001). Elle implique de prendre ses distances par rapport à l'objet social, et de ce fait la réflexion révélera une tension entre la pensée didactique et la réalité sociale dont il est impossible de se libérer. L'enseignant peut certes se concevoir en chercheur ("man as scientist": Kelly, 1955), mais cela générera un conflit entre son engagement social et la distanciation réflexive (Elias, 1993) (Narcy-Combes J. P., 2010, p. 119).

Annoot and Bertin (2013) expressed the same concern and warned against the danger of falling in the trap of one's own experience, which is against epistemological practices.

Pourtant tout enseignant rencontre des problèmes, au sens de questions à résoudre que Popper (1999) donne à ce terme. Il sera souvent tenté à trouver des solutions en s'appuyant sur son expérience : agir ainsi va à l'encontre à ce qui est avancé par Bachelard (1939) ou Kelly (1955), par exemple sur le plan épistémologique (p. 100).

The conflict between action and reflection might be explained by the very nature of action and reflection. Hasley (1972) and Marris and Rein (1967), cited in Cohen and Manion (2000), argued that action and research have two different orientations.

It has been observed (Hasley, 1972 for instance) that research values precision, control, replication and attempts to generalize from specific events. Teaching, on the other hand, is concerned with action, with doing things, and translates generalizations into specific acts (p.195).

Cohen and Manion (2000) suggested that a clear statement of the purpose of the project in action research, together with 'a careful analysis of the context' where the project will be implemented, can bridge the gap between action and research.

The teacher/ researcher has to take distance from his/her reality, and, as Narcy-Combes J-P (2010) stated, 'un recul', because individuals customarily formulate an opinion of their reality that is based on "pseudo knowledge", or "la doxa" as in (Macaire, 2010). Macaire (2010) explained how, in Plato, people of the cave saw a shadow of

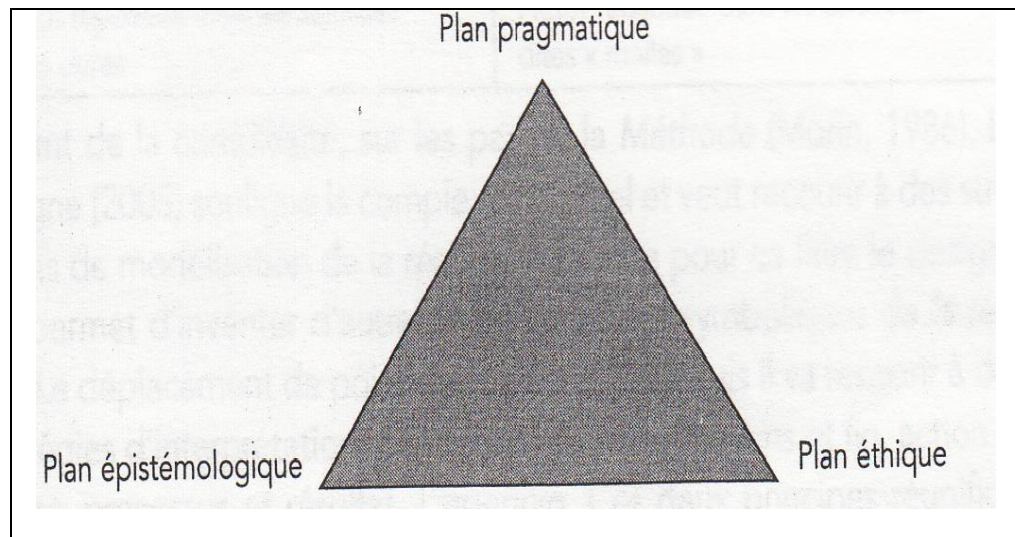
animals in the field and believed that it was a real thing. Only those who left the cave and saw the shadow from a distance managed to surpass their dogmatic thinking. This distancing step is reflective and it helps the researcher to distinguish between *représentations* and *constructions scientifiques*. Nancy-Combes J-P (2010) insightfully opposed the concepts *épistèmê* and *doxa* and showed how this involves self-detachment from one's own experience.

La doxa (Bourdieu, 1980) se conçoit comme l'ensemble, pas nécessairement homogène, d'opinions (plus ou moins définies), de préjugés populaires ou singuliers, de présuppositions généralement admises et évaluées positivement sur lesquelles se fonde toute forme de communication, sauf par principe celles qui tendent précisément à s'en éloigner, telles que la réflexion philosophique ou scientifique nous conduit au concept d'épistèmê (Foucault, 1966) qui désigne un réseau, un ensemble de dispositions des productions de la culture qui constituent, par rapport à cette culture, un savoir qui permet de séparer l'acceptable d'un point de vue scientifique de l'inacceptable. (Narcy-Combes J-P, 2010; p. 116).

The *épistèmê*, therefore, stands as the scientific path for the teacher to function according to conventions. Bachelard (1936), cited in Demazière and Nancy-Combes J-P (2007), called for distancing or *rupture épistémologique*.

G. Bachelard (1936) a montré la nécessité d'une rupture épistémologique pour passer d'une explication "toute prête" d'un phénomène, suscitée par divers conditionnements ou habitudes, à une compréhension qui s'appuie sur une théorie ou une approche scientifiques (p.4).

Eventually, in action research the researcher has to distance her/himself from his/her reality and avoid falling in the trap of *l'être de la Doxa*. Macaire (2010) portrayed this argument in figure (1) below.



Figure; 1 (Macaire's Triangle of Action Research Components, 2010, p. 69)

In this figure, the top of the triangle refers to the pragmatic level and the real observed problem. The base of the triangle refers to ethics and epistemology, which complete the picture of action research. Macaire (2010; 60) explained that seeking the truth entails overcoming one's beliefs and convictions in order to reach theory, which is both the aim and the means².

In action research, the teacher is looking for an explanation and a solution to problems related to classroom practices and how to improve these practices. To reach these objectives, it is required that the teacher bases his/her action on theories of knowledge. Narcy-Combes (2010; 118) confirmed this argument, noting that managing uncertainty involves stepping back in order to move away from our conditionings, habits and representations and to have an understanding which is based on theories and scientific approaches.³

Beasley and Riordan (1981), cited in Nunan (1989), showed how useful action research is for teachers, researchers, and the teaching/ learning communities for providing practical, insightful, and well-informed solutions to 'immediate concerns' of teachers.

- It begins with and builds on the knowledge that teachers have already accumulated.
- It focuses on the immediate concerns of classroom teachers.
- It matches the subtle organic process of classroom life.
- It builds on the natural processes of evaluation and research which teachers carry out daily.
- It bridges the gap between understanding and action by merging the role of researcher and practitioner .
- It sharpens teacher's critical awareness through observation, recording, and analysis of classroom events.
- It helps teachers better articulate teaching and learning processes to their colleagues and interested community members.
- It bridges the gap between theory and practice (Beasley and Riordan, 1981, in Nunan 1989; p.17-18).

² « Rechercher la vérité passe par le dépassement de la doxa, des croyances et des certitudes ou beliefs, pour atteindre la théorie, à la fois visée et moyen » (p. 69)

³ « Gérer l'incertitude implique de prendre du recul afin de passer de nos conditionnements, habitudes et représentations à une compréhension qui s'appuie sur une/ des théorie/s ou une/ des approche/s scientifiques » (p. 118)

In summary, the role of the teacher as an insider is crucial and seminal in action research. However, action has to be well-informed and guided by reflection in order to account for the multi-faced world of the learner and learning as a complex process. A question arises at this stage: what should come first action or reflection? This question has led to the emergence of different types of research in action research, which is described in the next section.

1.3. Types of Action Research

Ellis (1997) delineated three types of action-research: technical action research, practical action research, and critical action research.

1.3.1. Technical Action Research

In this type of action research, one starts from theory and then moves onto practice. The researcher uses previous research findings to make changes in his/her classroom. It is also possible that outside researchers co-opt practitioners into working on questions derived from theory or previous research. Crookes (1993) characterized this kind of action-research as a relatively conservative line, noting that it is likely to result in work published by scholars for academic audiences. For Ellis (1997), “[technical action research] is approved because it fosters connections between universities and schools while maintaining the values and standards of traditional research” (p. 23).

This type of action research is very similar to what Narcy-Combes J-P (2005) identified as the French tradition or *recherche-action*. As the label may indicate, research precedes action in this type of research. Narcy-Combes described it as ‘+ universitaire’, and he elaborated that the closer the researcher is to his practices, the farther s/he is from the French tradition and the academic position. He associated the French tradition with objectivity, noting that it is based on hypothesis testing. The figure below illustrates the differences between the two positions, the Anglo-American and French traditions.



Figure 2; Action Research Paradigm, (Narcy Combes J. P., 2005; p. 113)

However, Ellis (1997) claimed that in SLA, theory delivered by researchers to classroom teachers is not necessarily beneficial. On the other hand, classroom research initiated by practitioners themselves may succeed in bridging the ‘gulf’ between theory and practice and in providing useful ‘knowledge’ to the teacher.

There is a more serious objection to Krashen’s proposal that SLA theory should guide language pedagogy [...]. SLA theories, such as Krashen’s, are typically the product of the contemplative approach to enquiry that characterises much modern scientific thinking [...] these theories have been developed through formulating and systematically testing hypotheses based on them. The result is ‘technical knowledge’. However, such knowledge, because of the very form in which it is couched, is not really accessible to practitioners in their day-to-day work [...]. For a theory to be of maximum use to teachers it has to take the form of praxis- a theory of action (Ellis, 1997, p. 14).

Wright (1992, cited in Ellis, 1997) distinguished between research on ‘*what goes on in the classroom*’, led by practitioners (i.e., action research), and “*what is supposed to go on*”, led by linguists, with the former more promising to educators. Ellis (1997) explained that the reason behind the gap between theory and practice is that researchers and teachers have different goals. As researchers are concerned with the ‘*truth*’, teachers seek to find out ‘*what works*’.

1.3.2. Practical Action Research

The second type of action research, as stated in Ellis (1997), is ‘practical action research’ or ‘teacher research’. This type of research is carried out by teachers in their classrooms, and it also aims to develop and ameliorate current ‘practices’. According to Ellis (1997), Carr and Kemmis (1986) refer to this kind of research as ‘*practical action research*’, but Hopkins (1985) prefers the term ‘*teacher research*’. This research involves a cycle of activities in which the starting point is planning (i.e., the identification of some problem that needs solving). This first step leads to action (e.g., the teaching of a lesson in which the problematic behavior will arise). Observation of the action provides material

for reflection, which then may lead to further planning. Each step or moment in the cycle looks back to the previous step and forward to the next step.

Practical action research is, therefore, what appears on the left side in Narcy-Combes J-P's Figure 2, above. It is anchored in practice and falls in the Anglo-American tradition; 'the closer the researcher is to practice, the less possible the academic position is' (Translated from Narcy-Combes J-P, 2005, p 113)⁴. It is important to note, however, that the steps of this type are almost the same as in any action research, and they include planning, action, observation, and reflection. In each step, the researcher has to look back and forth, which entails constant evaluation, reflection, planning, and adjustment. According to Nunan (1992), in this type of research, an 'outside facilitator' can be consulted to help formulate plans for action. From this perspective, practical action research is similar to technical action research where an outside expert can be co-opted.

1.3.3. Critical Action Research

The third type of action research, identified by Ellis (1997), is 'critical action research'. Like the other two aforementioned types, critical action research seeks to ameliorate the work practices. What distinguishes it, though, is the desire of teachers or participants to emancipate themselves through an associated project. This argument is in line with Wallace (1998), cited in Dornyei (2001), as indicated in the following statement.

It is assumed that most language teachers wish to develop themselves professionally on a continuous basis. They have access to a wide variety of methods of doing this. One method is by reflecting on interesting and/or problematic areas in a structure way...through the systematic collection and analysis of data. This is what I have called 'action research' (Wallace 1998, p. 18 cited in Dornyei, 2001, p 185).

This definition essentially portrays action research as an opportunity for teachers to professionally develop themselves. However, nothing differentiates it from the second type, 'Practical Action Research' in terms of steps; it follows the same cyclical process, as described in the next section. This statement also stresses the scientific aspect of action

⁴ "Plus le chercheur est proche de la pratique, moins la position universitaire lui sera facile"

research by describing data collection as a systematic process. It values reflecting on classroom issues that are described as interesting.

1.4. The Cycles/ Plans of Action Research and Recherche Action

As already indicated, the three types of action research identified in the previous section follow basically two major plans, which Narcy-Combes J-P (2005) referred to as the French tradition and the Anglo-Saxon tradition. These plans are customarily presented in cycles, as McDonough and McDonough (1997) reported, “[They are usually] conceived in terms of a self-reflective spiral, or cycle” (p. 26).

1.4.1. The Cycle of *Recherche Action* as in the French Tradition

Figure 3 below, which was designed by Narcy-Combes (2005), represents the cycle of action research. The arrows indicate the French tradition of starting from theory and moving to practice. Once a researcher is equipped with theory, s/he can then identify a problem. In the next stage, s/he will return to theory to question the problem s/he observed, preferably in a team, to redefine it, set objectives, and take action. The research variables should then be defined and methods of research within a chosen methodology have to be selected. During action, data is collected and then scientifically analyzed. These results allow an examination of what aspects did not work in order to restart action, and, in doing so, the cycle goes on.

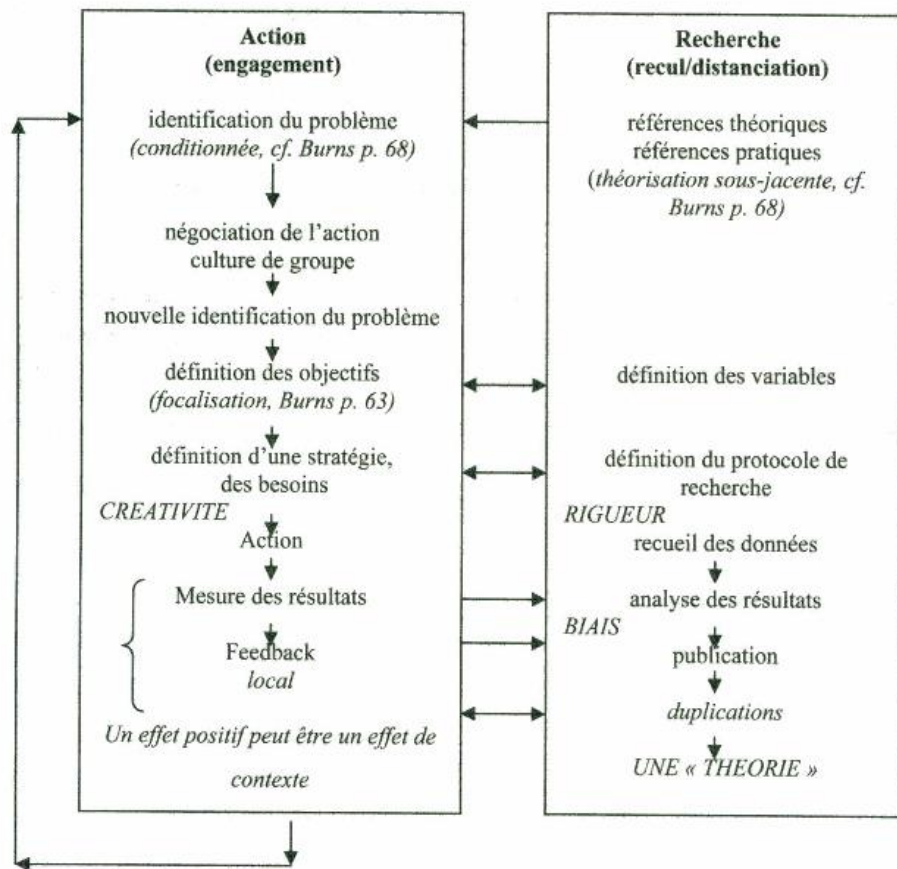


Figure 3 ; Cycle de recherche action, (Narcy-Combes J.P., 2005; p.114)

1.4.2. The Cycle of Action Research in the Anglo-American Tradition

In Figure 4 below, Harmer's (2005) presentation of the cyclic process of action research starts from the teacher's learning environment in which s/he spots a problem that needs to be addressed.

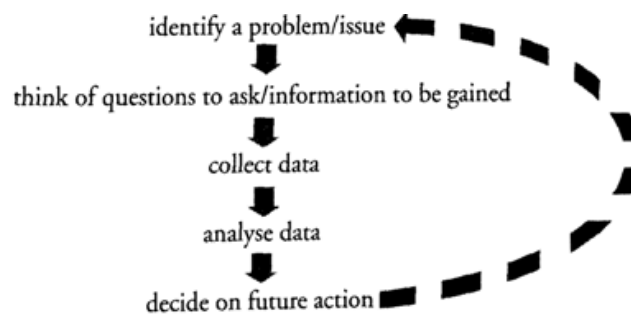


Figure: 4, An Action Research Cycle, (Harmer, 2005, p. 414)

The steps in this cycle are clearly stated and are echoed in other cycles (e.g., Ellis, 1997; Macdonough & Macdonough, 1997). The cycle ends with future plans which should be subject to evaluation and the cycle starts again. Similarly, McDonough and McDonough's (1997) cycle starts with ideas generated about the working environment: *"Initial idea→ fact-finding→ action-plan→ implementation→ monitoring→ revision→ amended plan→ and so on through the cycle"* (p. 26). In these two cycles, however, the idea of taking distance to scientifically approach the problem is not as explicit as it is in the French tradition.

Likewise, Nunan (1992) reported seven steps in action research in which the starting point is the problem encountered by the practitioner in his/her classroom, as Figure below shows.

<i>Step 1: Initiation</i>	→	<i>A teacher comes to me with a problem. His current group of students does not seem interested or motivated. What should be done?</i>
<i>Step 2: Preliminary investigation</i>	→	<i>We spend some time collecting baseline data through observation and recording classroom interaction</i>
<i>Step 3: Hypothesis</i>	→	<i>After reviewing the initial data, we form the hypothesis that the students are unmotivated because</i>
<i>Step 4: Intervention</i>	→	<i>The teacher devises a number of strategies for encouraging the students to relate the content of the lessons to their own backgrounds and interests. These include increasing the number of referential over display questions.</i>
<i>Step 5: Evaluation</i>	→	<i>After several weeks. The class is recorded again there is much greater involvement of the students, and the complexity of their language and student- led interactions is enhanced.</i>
<i>Step 6: Dissemination</i>	→	<i>The teacher runs a workshop for colleagues and presents a paper at a language conference.</i>
<i>Step 7: Follow up</i>	→	<i>The teacher investigates alternative methods of motivating students</i>

Figure 5; Steps in the action research cycle (Nunan, 1992, p. 19)

As indicated in Figure 5, research starts from the classroom as an observation or a diagnosis of a problem that hinders students' learning. An investigation is carried out where data is collected. A hypothesis is then formulated. The next step is to reflect on this problem and provide a remedy that is derived from theory and research; in this cycle, Nunan (1992) pointed out that the teacher would consult a researcher to conduct the action research. This might compensate for resorting to theory, a step that appears not to have been clearly stated in other cycles. Intervention or action is then taken with the hope

to make changes. The next stage involves an evaluation of the outcome. Results are reported, then analyzed, and discussed in light of the hypothesis and theoretical setting of the research. Findings are reported, at the least in a workshop, and the cycle goes on.

Cohen and Manion (2000:186) summarized all these steps into two stages, which they called “*a diagnostic stage*” and “*a therapeutic stage*”. As it can be inferred from the labels, action research involves diagnosis and treatment. This takes us to consider the characteristics of action research in the next section.

1.5. Characteristics of Action Research

Action research is described in the literature as a remedy to cope with specific learning problems in specific contexts. Therefore, it aims at coping with one situation under study rather than generalizing its findings. Cohen and Manion (2000) explained that action research is context-based (i.e., it seeks to improve a teaching situation that is not necessarily generalised to other contexts). Macaire (2010) distinguished between research in action research and research in linguistics. Unlike linguistics, action research is rooted in the world of the learner and his environment as Macaire (2010; 68) pointed out, ‘we can thus say that the quest for knowledge in action research is first conducted on a pragmatic level, the reality of contexts’.⁵

According to Cohen and Manion (2000), it is empirical since it relies on field work, the implementation of changes, and observation of behaviors:

Action research relies chiefly on observation and behavioral data. That it is therefore empirical is another distinguishing feature of the method. This implies that over the period of a project information is collected, shared, discussed, recorded in some way, evaluated and acted upon (p. 192).

Another feature of action research is its flexibility. Action research allows changes in plans when necessary and it is not a rigid experimental practice. As previously argued, it involves a continuous evaluation of what works and what does not work.

A feature which makes action research a very suitable procedure for work in classrooms and schools (as well as other field settings) is its flexibility and

⁵ « On peut ainsi dire que la quête de la connaissance en recherche- action se joue d’abord sur un plan pragmatique, celui de la réalité des contextes » (p. 68).

adaptability. These qualities are revealed in the changes that may take place during its implementation and in the course of on-the-spot experimentation and innovation characterizing the approach (Cohen and Manion, 2000; p. 192).

These features entail two conditions. First, the researcher does not isolate factors and study them accordingly. In contrast, s/he looks at different factors interacting together in a complex situation in which learning takes place. This is why a qualitative paradigm approach was adopted in this study, which values these practices.

Burton and Seid (2005) stated that action research seeks to understand and improve complicated classroom practices that are in constant change, and, thus, it cannot be conducted from an analytic perspective:

Teacher researchers believe that they can best serve the larger educational community, as well as their classrooms, by placing at the center of their inquiry the daily challenges and teaching questions that are part of the complicated and demanding context of real classroom life. Rather than embrace the naive empiricism that characterizes a removed, often environmentally controlled, and reductionist approach toward researching teaching and learning, teacher researchers not only observe, but actually manage the multiple demands and constantly shifting factors that characterize educational experiences and necessitate minute-to-minute decision making (Burton and Seid, 2005; p. 198).

In the statement above, classroom context is described as being complex, experiential, and dynamic. Therefore, it requires being studied in a way that values these characteristics. This is why Systemics and Dynamic Systems Theory (DST) were adapted in this study to observe classroom practices and learners' behaviors, as outlined in Chapter 3.

1.6. Action Research and Didactic Ergonomics

Just like in action research, didactic ergonomics aims at diagnosing problems with a learning situation and providing ways to cope with these problems and enhance students' learning. Raby (2003; 32) presented didactic ergonomics as 'a science of reconstructive intervention, where the ergonomist is somehow the troubleshooter who will solve the problem with the right diagnosis and the relevant repair plan'⁶. In this perspective, action research shares many common features of didactic ergonomics.

⁶ "L'ergonomie a souvent été également présentée comme une science de l'intervention réparatrice, l'ergonome étant, en quelque sorte, le troubleshooter, celui qui va fusiller le problème à l'aide d'un bon diagnostic et d'un bon plan de réparation » (Raby, 2003 ; p. 32).

Data collection in action research replicated what Leplat (2000, in Raby, 2003) called “*l’analyse de travail et le diagnostic*” in the context of didactic ergonomics. Leplat (2000) proposed a plan for this procedure, which is very similar to an action research cycle.

Phase 1 : la définition des buts

Phase 2 : l’analyse du travail et le diagnostic

Phase 3 : la définition de l’intervention qui conduit souvent à une redéfinition des buts

Phase 4 : l’exécution de l’intervention

Phase 5 : l’évaluation de cette intervention (Leplat, 2000 ; p. 4, in Raby, 2003 ; p. 36).

Bertin (2000) stated that didactic ergonomics is concerned with applied research and explained how models can open the researcher’s perspectives and help him/her to see opportunities of innovation in his/her practice.

L’ergonomie didactique se distingue principalement des sciences traditionnelles, sur lesquelles elle se fonde toutefois, par un accent prononcé placé sur la recherche appliquée. La théorisation qu’elle implique, en tant qu’activité scientifique, vise à observer l’existant pour tenter de distinguer quelques universaux à travers la diversité du paysage proposé. En retour, elle cherche à proposer, tant au chercheur qu’au praticien, de nouveaux modèles, de nouveaux cadres de réflexion à partir desquels établir une pratique innovante, idéalement plus proche des objectifs linguistiques – quantitativement ou qualitativement – que les pratiques traditionnelles (p. 27).

Raby (2003) argued that a model in didactic ergonomics is the instrument that helps the teacher to deal with the information that can be collected at his/her workplace, as well as to make use of that provided by science.

C’est là une différence importante qui a motivé de nombreuses recherches en didactique des langues. L’ergonome se sert des données qu’il a pu recueillir sur la situation de travail ainsi que des données que lui fournissent les sciences qui participent à l’ergonomie pour se livrer à un travail de modélisation de la situation de travail, réduite aux éléments pertinents au regard des questions qui lui sont posées (p. 38).

1.7. Summary

To conclude, whether in the French or Anglo-Saxon tradition, action research is a cyclic process that is motivated by a diagnosis of classroom problem. It gains its scientific aspect by the teacher/researcher distancing him/herself from his/her reality by making reference to theory and the new identification of the problem based on the

acquired theoretical understanding. The importance of theory in action has been emphasized in order to call it research. The researcher, therefore, follows a conventional process by gathering data about the problem, providing a remedy, like a new method, new techniques, or strategies, and implementing them. Then, s/he evaluates them and disseminates the results. The cycle re-starts using an amended plan.

During this journey, the teacher plans, acts, observes, and reflects. At every step, s/he has to look backward and forward to amend his/her plans if necessary. The end of the loop takes the teacher back to the starting point to plan again, with the hope of restarting a safer journey.

For this study, action research is used in a manner described in the Anglo-American tradition. Specifically, Nunan (1998) indicated that this is where the teacher (1) starts his/her research with a 'puzzle', (2) collects data to know exactly what the problem is, (3) returns to theory to find an alternative solution, (4) prepares an action plan and implements it, and (5) evaluates the results and disseminates the findings. This study started by identifying some problems in the classroom practices and then resorted to theory to find a solution. The aim is still the same as that of *recherche action* described by Nancy Combes (2005), which is to promote teaching practices and fix problems related to language learning. It aims to provide new alternatives to classroom practices to fix the diagnosed problem.

It was also argued that the very specific features of action research enable it to be approached from a qualitative perspective and theories of complexity, as it will be discussed in Chapters 2 and 3. As outlined in previous chapters, classroom research has always been associated with complexity and dynamism due to multiple factors that work together and result in specific situations. Eventually, two approaches in the literature were examined to provide the epistemological basis for this study, namely Systemics and Dynamic Systems Theory.

Chapter 2: Classroom Research, Systemics and Dynamic Systems Theory

"Si nous ne changeons pas notre façon de penser, nous ne serons pas capables de résoudre les problèmes que nous créons avec nos modes actuels de pensée" (Albert Einstein, in Donnadieu et al., 2003 ; p.1).

2.1. Classroom Research and the Notion of Complexity

It seems that there is consensus in the literature that classroom reality cannot be approached from a positivistic analytic approach, but rather it should be approached holistically to account for the different dimensions of classroom research as a whole.

In a study carried out in a classroom using a stimulated recall technique, Woods (1989, cited in Nunan, 1992) came to a number of conclusions, which included: "The overall process of decision-making within the classroom context is incredibly complex, not only in terms of the number and types of decisions to be made, but also because of the multiplicity of factors impinging on them" (p.94).

In addition, Mc-Donough and Mc-Donough (1998) stressed the interactive aspect of the different elements involved in any learning environment and their dynamic features. They recommended that when conducting action research, it is useful to bear in mind the complexity of the learning situation since classroom reality is dynamic and unpredictable.

In this view, then, reality is seen not as fixed and stable but as socially constructed, so what Sevigny (1981, p.72) calls the 'social order'- in our case, of a classroom- is perceived as 'an emergent phenomenon'. This view is echoed by Erickson and Schultz (1981:148), who describe social contexts as 'interactionally constituted environments' where there is a constant process of change and re-adjustment (p.46).

Cortes (1987) identified five components for research in *didactique des langues étrangères* (DLE) that work as a system: the learner, the teacher, learning, teaching materials, and evaluation in his taxonomy of DLE, which is based on what he called '*l'acte pédagogique*'. Cortes (1987) argued that looking at one component involves the consideration of the others when it comes to evaluation. For instance:

Si l'on se place dans la perspective d'une pédagogie par objectif, c'est-à-dire d'une démarche prenant en compte, dès le départ, l'ensemble des effets mesurables d'un

apprentissage (savoir, savoir-faire, savoir-être) l'évaluation implique nécessairement la participation des différents acteurs du système c'est-à-dire d'une part, le maître et les apprenants (évaluation interne) d'autre part, les représentants de l'institution (évaluation externe) (p. 17).

This is a systemic view where the elements of the learning situation are considered interdependent as in any system. Cortes (1987) explained why research calls for the adoption of Systemics as an approach to tackle a research problem in didactics. He suggested that it is necessary to look at other disciplines that can provide information about, for instance, the learner.

Similarly, Bertin, Gravé, and Narcy-Combes, J-P. (2010) described the educational system as ‘*complex*’, ‘*goal-oriented*’, ‘*equifinal*’, ‘*open*’, and ‘*interactive*’. They argued that Systemics, a theory of complexity, accounts for all the factors involved in the learning environment and their impact on one another. The authors explained that this approach emerged out of the need to cope with issues that the analytic approach failed to account for.

Bertin *et al.* (2010) argued that learning involves different parts that interact together. They illustrated this argument with the learning cycle outlined in Figure 6 below.

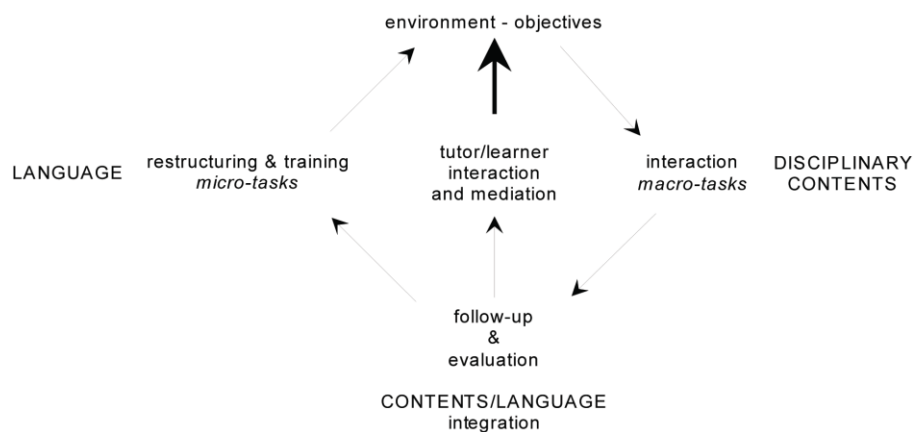


Figure 6; *The Learning Cycle* (Bertin *et al.* 2010; p. 10, adapted from Narcy-Combes, J.-P., 2005)

2.2. Systemics

Donnadieu, Durand, Neel, Nunez, and Saint-Paul (2003) defined Systemics as a new discipline which allows the study of complex systems.

Nouvelle discipline qui regroupe les démarches théoriques, pratiques et méthodologiques, relatives à l'étude de ce qui est reconnu comme trop complexe pour pouvoir être abordé de façon réductionniste, et qui pose des problèmes de frontières, de relations internes et externes, de structure, de lois ou de propriétés émergentes caractérisant le système comme tel, ou des problèmes de mode d'observation, de représentation, de modélisation ou de simulation d'une totalité complexe (pp. 2-3).

They reported that Systemics or *l'approche systémique* emerged in the 1950's in the United States of America and 1970's in France as a reaction to positivism and its failure to cope with systems' complexities. Systemics was sought to account for instability, disorder, chaos and non-linearity of any system. Bertin *et al.* (2010) explained how the analytic approach failed to account for the interconnectedness of different elements of a system and the issue of complexity. They also asserted that to tackle the issue of complexity, Systemics can be the answer.

The proponents of systemic base their approach on a criticism of Cartesian rationalism, sometimes called 'analytic perspective' or 'Aristotelian conception, felt to be reductive. Their main argument (Checkland, 1981; Commoner, 1972; Fourez, 1974; Kerlinger, 1964; le Moigne, 1977; Watzlawick, 1980) is that complex systems cannot be understood with the experimental method. This method assumes a system can be explained by the study of its isolated components. The increased complexity of our world requires a new and more appropriate approach (Bertin et al, 2010, p. 2).

The above quote explains why the positivistic experimental method cannot be adopted for classroom action research. A classroom, a subsystem of the educational system, functions as a whole. Therefore, breaking it down into separate isolated components provides little knowledge about the way its elements function naturalistically, holistically, and impact one another. Comparing the properties of the two approaches, the systemic and analytic approaches, will better clarify why the analytic approach is not suitable for this study. The following table, as provided by Bertin *et al.* (2010), explains this 'dichotomy' between the two aforementioned approaches.

<i>Analytic / Experimental method</i>	<i>Systemic approach</i>
<i>Focuses on isolated elements.</i>	<i>Establishes relationships: focuses on interactions between elements.</i>
<i>Considers the nature of interactions.</i>	<i>Considers the effects of interactions.</i>
<i>Relies on details accuracy.</i>	<i>Relies on global perception.</i>
<i>Changes one variable at a time.</i>	<i>Changes groups of variables simultaneously.</i>
<i>Is time-independent: phenomena are reversible.</i>	<i>Is time-dependent: phenomena are irreversible.</i>
<i>Validation comes from experimentation within a given theory</i>	<i>Validation comes from comparison of the model with reality.</i>
<i>Models are accurate and detailed, but hardly usable for action (e.g.econometric models).</i>	<i>Models are not accurate enough to represent knowledge but can be used for action.</i>
<i>Efficient with linear and limited interactions.</i>	<i>Efficient with strong non-linear interactions.</i>
<i>Entails a disciplinary approach.</i>	<i>Entails a pluridisciplinary approach.</i>
<i>Entails a detailed plan of action</i>	<i>Entails goal-oriented action.</i>
<i>Focuses on detailed knowledge; goals are ill-defined.</i>	<i>Focuses on identification of goals not on details.</i>

Table 1; Analytic and Systemic Methods - A Comparison (Bertin et al., 2010, p. 3)

We can infer from this table that Systemics is compatible with multi-factor-systems can help in the investigation of complex systems. It can facilitate their studies without isolation, control or limitation. The figure below by Donnadiou et al. (2003) depicts the principles of Systemics both in theory and in practice.

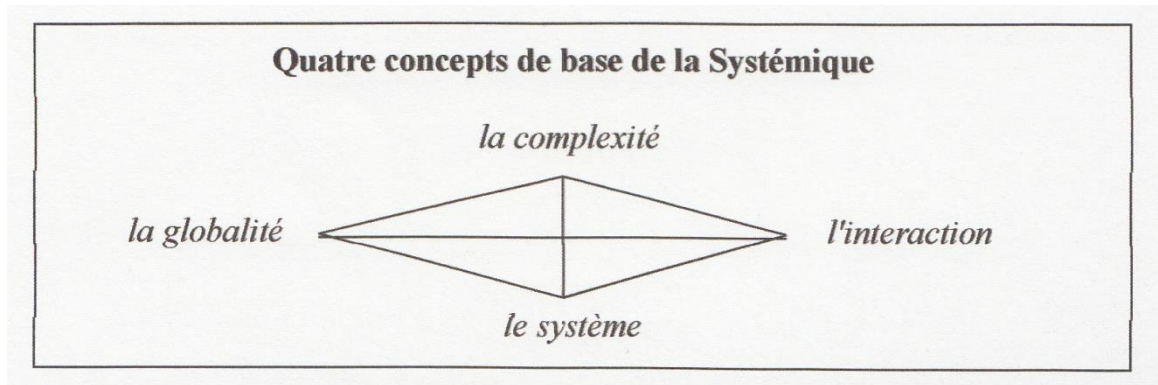


Figure 7: Four Basic Concepts of Systemics (Donnadiou et al., 2003; p.3)

The four basic concepts in Systemics are complexity, system, interaction and the sum of individual parts. Complexity is a dominant feature of each system. To better understand the concept of a system we can quote Walliser (1997, cited in Puren, 2015):

Le concept de système a été forgé autour de trois idées essentielles :

- celle d'un ensemble en rapport réciproque avec un environnement, ces échanges lui assurant une certaine autonomie ;*
- celle d'un ensemble formé de sous-systèmes en interaction, cette interdépendance lui assurant une certaine cohérence ;*
- celle d'un ensemble subissant des modifications plus ou moins profondes dans le temps, tout en conservant une certaine cohérence (Bernard Walliser, 1997, p. 11 cited in Puren, 2015, p.7).*

As we can see in the definition of a system, its key concepts are interaction, coherence and entirety, which are also basic concepts of Systemics. Totality, the other feature of a system stresses the fact that the entirety of a system is more informing than the sum of its parts; 'the whole is more than the sum of its parts'⁷ (translated from Donnadiu et al., 2003, p. 4). Donnadiu et al. elaborated that we cannot really understand a system if we do not look at its parts in their natural interaction.

In addition to these characteristics, Donnadiu et al. identified a number of elements which interfere with a system at work among which we will discuss information, feedback and ago-antagonism. These are particularly significant for this study and have a close relationship with the notion of impact. Donnadiu et al. differentiated between two types of information: information circulating within the parts of a system, '*l'information circulante*', and information inherent in a system, '*l'information structurante*'. The first one represents information that occurs between parts of a system and the latter signifies the type of information inherent in the structure of a system. There is also the notion of goal '*finalité*' that each system wants to achieve. Feedback or '*rétroaction*' is another important factor which also plays a seminal role in a dynamic system. Donnadiu et al. defined '*rétroaction*' as the new input a system receives depending on its own output.

La rétroaction : dans un système ou sous-système siège d'une transformation, il y a des variables d'entrée et des variables de sortie. Les entrées sont sous l'influence de l'environnement du système et les sorties résultent de son activité interne. On appelle alors boucle de rétroaction (feed-back en anglais) tout mécanisme permettant de

⁷ "le tout est plus que la somme des parties" (Donnadiu et al., 2003, p. 4)

renvoyer à l'entrée du système sous forme de données, des informations directement dépendantes de la sortie (Donnadieu et al., 2003; p.5).

As the figure below shows there are two types of feedback: positive and negative.

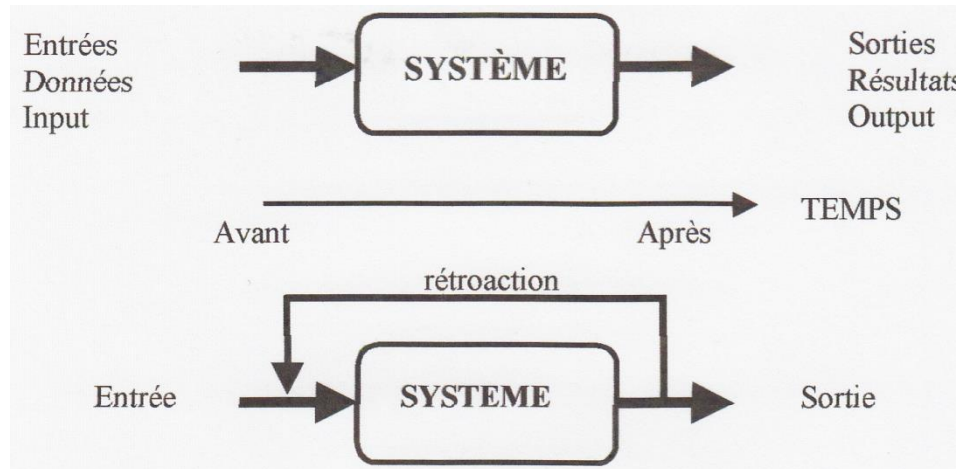


Figure 8; Feedback in a System (Donnadieu et al., 2003; p.5)

Donnadieu et al. explained that in positive feedback, entry of the output contributes to facilitate and amplify the transformation already underway. The effects are cumulative either resembling the "snow ball effect" giving a divergent behavior where change happens at a faster rate, or can lead to a total blockage of the activity. Negative feedback (or stabilizer), which shows the degree of stabilization of the system, is an indicator that the goal has been achieved and feedback has been effective.

Systemics seems to be the most appropriate approach to this study due to its multi-disciplinary dimension. The other reason is that our focus is on the impact of the PBL approach on learners where complexity, interactions, and changes are involved. The notion of positive and negative feedback in Systemics can give more insight on how changes in learners' learning can occur.

This thinking is also encouraged by another theory of complexity, the Dynamic Systems Theory (DST), which will be discussed in the next section. Like Systemics, DST values complexity of systems.

2.3. Dynamic Systems Theory (DST)

DeBot, Lowie, Thorne and Verspoor (2013) compared Dynamic Systems Theory (DST) to positivist theories/ reductionist theories. They explained that one issue reductionism fails to account for is the emergence of new features of a system when complexity increases.

DST as a global approach to complexity has given birth to several perspectives. While 'reductionism' aims to explain complexity by reducing it to its basic constituent parts, the concept of 'emergence', on which the present vision is grounded, is based on the principle that a global system is richer than the mere sum of its parts. When complexity increases, new properties emerge, which are specific to the system itself (p.4).

DeBot *et al.* (2013) also described the structure of a system, whether it is the language, the learner, or the language community, as a group of sub-systems that work together in a dynamic state.

DST is a useful theory in SLD in that it recognizes that a language (be it first, second or third), language learners (young or old), and language communities (in naturalistic or instructional settings) are each complex, dynamic systems. Systems are groups of entities or parts that function together. Any system is inclusive of embedded sub-systems, all of which dynamically interrelate with one another (p. 200).

DeBot, Lowie and Verspoor (2007) described DST as the theory that can account for any system complexity and change over time using a simple mathematical equation. DST originated to account for systems like in math, but “When applied to a system that is by definition complex, such as a society or a human being, where innumerable variables may have degrees of freedom, DST becomes the science of complex systems” (p.8). They assert that DST is concerned with the change that happens within a system over time: “The major property of a DS is its change over time, which is expressed in the fundamental equation $x(t+1) = f(x(t))$, for any function describing how a state x at t is transformed into a new state x at time $t+1$.” (p.8). However, the trajectory between these two points is complex and nonlinear; it is similar to a ball moving over a surface with holes and bumps, and, when the hole is deeper, more energy is needed in order for the ball to move onto the next stage. In addition, this change cannot be seen in a simplistic way, as each system is characterized by total interconnectedness between its various parts and a change in one variable can impact all the others. Thus, all the parts of a system keep changing over time. Therefore, changes cannot be accounted for analytically. This view, which was adopted in this study, impacted the data collection techniques during the

implementation of the new teaching methodology and observation of students' behaviors. This is explained in the empirical part of this study (Chapter 14).

To conclude, as in Dynamic Systems Theory, a learning situation is impacted by different variables. A change in one factor may bring about big or small changes in another. To put this view in the context of language learning, the context impacts the choice of language, theories of language and language learning, and methodologies, which account for a description of the teacher's role, student's role, course design and/or choice of course materials, and type of input. The learner is also affected by his/her studying context, all the individuals involved in an ESP program, the practices of an ESP practitioner, his/her own attitude, and the practices and his/her peers. All the parts of the system are inter-related and interconnected.

2.4. Summary

Dynamic Systems Theory and Systemics value a holistic approach to studying a learning environment. They account for complexity and different factors impacting a system and leading to changes. This is compatible with the notion of impact we want to investigate in this study. This is how they outweigh the analytic approaches, which are usually referred to as reductionist approaches isolating parts and ignoring the value of their interaction and external effects on them.

In relation to the research question in this study, different disciplines were used to study the impact of PBL on EAMP learners. The study also focused on the interaction between different variables in the learning situation and the changes that might occur. Adopting Systemics and DST allows interaction between different variables and the two disciplines of medicine and language learning.

This is in accordance with the more recent move in understanding reality from being static to dynamic, as explained by Puren (2015) below.

Dans l'évolution des idées en Occident, depuis un demi-siècle, on est passé, que ce soit pour comprendre la réalité ou pour agir sur elle,

– d'un mode d'appréhension d'une réalité statique, où sont privilégiées les structures, c'est-à-dire les relations entre les différents éléments d'ensembles

considérés comme cohérents et stables parce que relativement indépendants de leur environnement,

– à un mode d’appréhension d’une réalité dynamique, où sont privilégiés les systèmes, c’est-à-dire les interactions, rétroactions, récursivités et autres flux entre les différents éléments d’un ensemble qui est cohérent, mais en même temps ouvert sur un environnement complexe qui l’amène à évoluer pour s’adapter (p.7).

A way to grasp these notions of complexity and dynamism in language didactics is to use a didactic model. Bertin (2012) explained that language didactics can create its own models and approaches to answer relating questions⁸.

⁸ “Cependant, elle [language Didactics] se donne aussi pour visée de créer ses propres modèles et ses propres méthodes adaptées aux questions posées» (Bertin, 2012).

Chapter 3: Using a Didactic Model

3.1. Practicality of a Didactic Model

The concepts of Systemics and DST discussed in the previous chapter coincide with a more recent view of reality. Puren (2015) debated that in language didactics, reality is no longer perceived as static, but as dynamic and changing. A model, therefore, helps portray the dynamic reality in language didactics, as it points out the possible areas of interaction between the different variables at play and how one can impact the other. This provides the researcher with a practical plan to put the theories of complexity into practice via investigating classroom research in a dynamic way. Using a model is one of the necessary practices of Systemics; Donnadiou et al. (2003 : 9) stated that using a model is primarily a technical process to represent a complex object or a situation, for the sake of knowledge and action and that models are used in all scientific fields which are concerned with complexity⁹. A model represents this changing, dynamic learning system, as Bertin (2015) confirmed:

Dans une perspective émergentiste en cohérence avec celle développée notamment par Larsen-Freeman & Cameron (2008), Bertin et al. (2010), repris et approfondis dans Bertin & Narcy-Combes, 2013, proposent une approche modélisatrice comme une aide pour ordonner un environnement (d'enseignement / apprentissage) en constante évolution. Le modèle est une représentation du système au sein duquel s'opérationnalisent les processus d'apprentissage. Il répond à trois finalités : comprendre, concevoir et former (les enseignants, les tuteurs, les apprenants...) (paragraph. 10).

In accordance with these arguments in Language Didactics, Puren (2015) suggested that a model can bridge the gap between action and reflection.

*1) Comme l'indique Sinaceur, le modèle assure une fonction de « médiateur » – ou d'« interface », pour utiliser une autre image – entre la théorie et la pratique, fonction qu'il tient de sa nature épistémologique « intermédiaire » entre l'une et l'autre.
2) Le modèle assure cette médiation pour les deux sens de la relation théorie <-> pratique (p. 9).*

⁹ « Modéliser est d'abord un processus technique qui permet de représenter, dans un but de connaissance et d'action, un objet ou une situation voire un événement réputés complexes. On l'utilise dans tous les domaines scientifiques concernés par la complexité » Donnadiou et al. (2003; p. 9).

A model can help the teacher to identify and define concepts of the objects s/he is working with and see their connections and thus smoothly move from practice to theory. Various authors (e.g., Bertin, 2012; 2013; Bertin & Narcy-Combes J. P., 2010) argued that a didactic model can guide the researcher's investigation by delineating the borders of the work and highlighting the different concepts the researcher has to work with. In this way, it provides the user with "a conceptual framework for a more accurate understanding of complex language learning situations, for both teachers and researchers" (Bertin, 2013, p.7). Bertin (2013) stated two major advantages of using a model. First, a model points out all the possible interactions in a learning environment for the user. A model also structures the work by providing an outline or framework without prescribing any pre-determined view, allowing each user flexibility and creativity.

- *Offer a guide within uncertainty: while it is not possible to predict what will happen precisely, the model may remind teachers/designers of the variety of interactions at work and help provide « organizing circumstances » (Spear & Mocker 1984) in learning/teaching environments.*
- *Structure what can be structured: a model offers researchers, teachers and designers, a framework to ensure the theoretical validity of the assumptions on which interactions are based (Bertin, 2013, p.4).*

The functions of a model, for research purposes, are summarized by Bertin (2000, cited in Raby, 2003).

3. *It identifies basic components whose nature has to be defined or clarified;*
4. *It identifies interfaces between these components, or "places for interaction", without necessarily highlighting the actual nature of these interactions, which constitute as many questions for further research;*
5. *It eventually requires the researcher to investigate the reflexive impact of interactions on the original nature of each component (p 38).*

A model helps structure the research work, identify components at play and seminal concepts, and point out the possible interaction between components and their impact on one another. The focus of this study is on the impact of PBL on EAMP learners and a model would adequately serve this purpose. A model would allow the identification of research components. It allows the study of the impact of the PBL methodology on the learner and on other factors in the learning environment and to study changes. To start with, three different didactic models are considered.

3.2. Three Didactic Models

For this study, three different models are initially presented, namely Stern's model (1983), Hutchinson and Waters' (1987) and Bertin's (2013) model. The contribution of each model to the identification of the different components in this study and their areas of interaction will be discussed. The research question in this representation of the learning environment will also be outlined and an explanation provided of how it will be approached.

3.2.1. Stern's General Model for Second Language Teaching

The main objective of Stern's (1991) model is to guide research in language didactics:

In short, the object of the model is (1) to serve as a conceptual framework for theory development, (2) to provide categories and criteria for the interpretation and evaluation of existing theories, (3) to provide essential conceptualizations for planning and practice, and (4) to give directions to research (p.45).

The model encompasses three different levels in language teaching, each of which interacts with the others, as outlined in the figure below.

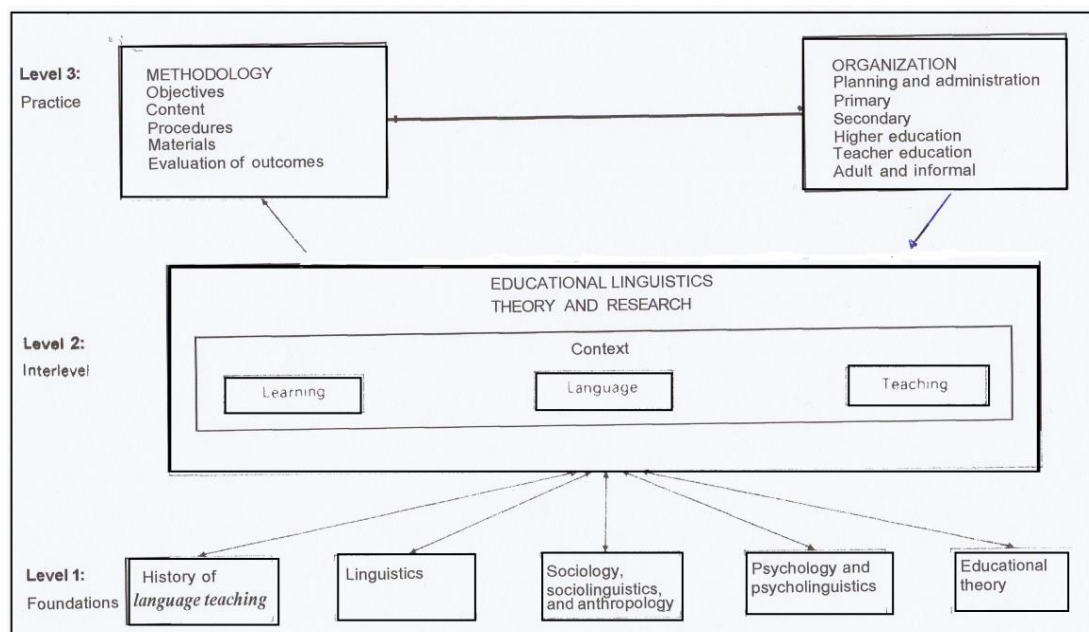


Figure 9. General Model for Second Language Teaching (Stern, 1991, p. 44)

The first level, which is at the bottom part of the model, is the most abstract level. It encompasses the disciplines that contribute to the development of theory in language teaching: “(1) the history of language teaching; (2) linguistics; (3) sociology, sociolinguistics, and anthropology; (4) psychology and psycholinguistics; and (5) educational theory” (p.49). This level illustrates the theoretical background and foundations that should inform language teaching and it depicts the interdisciplinarity of language didactics.

The inter-level, Level 2, which consists of methodology and organization, mediates between the theories from the other disciplines (i.e., Level 1 and Level 3), the practice of language teaching. The inter-level includes four key concepts in language teaching, which should be defined in the conceptual framework of any research in language didactics: language, learning, teaching, and context. Stern (1991) reported that, “the point of view represented by the model is that in language teaching, we have to operate with [these] four key concepts” (p. 48). Stern elaborated on this part, arguing that a view has to be formulated on the concept of language, learning and the learner, teaching and the teacher, and the context.

The third level or the practice level encloses methodology and organization, which is impacted by the view of the different concepts formulated in Level 2. As Stern (1991) explained, methodology is applicable to all levels of organization. Organization includes administrative planning, teacher education, and education at its different levels. In turn, organization impacts the choice of language theories at the inter-level. This shows how theory and practice can impact each other and how the components can be interactive.

3.2.2. Hutchinson and Waters’ Model, a Learning-Centered Approach in ESP

Hutchinson and Waters’ (1987) model, a Learning-Centered Approach in ESP, is made up of four sections. The starting point, at the top, is the concept of ESP defined as a learning approach geared towards meeting learners’ needs; “an approach to language teaching in which all decisions as to content and method are based on the learner’s reason for learning” (p.19). This definition of ESP was retained in this study, as it helps to

legitimize the choice of PBL for the EAMP learners in this study and the target population associated with it.

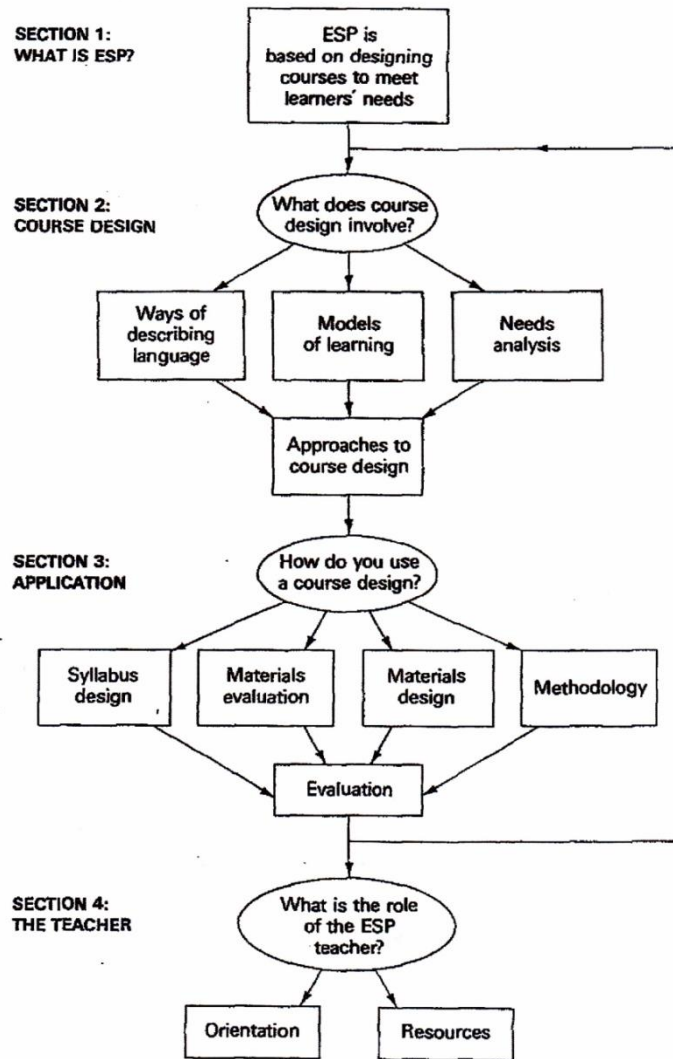


Figure 10. Outline of 'A learning-centred approach to ESP' (Hutchinson and Waters, 1987, p. 3)

Section two indicates that this view of ESP should be realized through course design for a particular group of learners: “This means in practice that much of the work done by ESP teachers is concerned with designing appropriate courses for various groups of learners” (p.21). Course design should be based on language views, models of learning, and needs analysis. This is also relevant to the teaching purposes, as the planning and preparation of teaching materials is done for the purpose of meeting learners’ needs.

In section three, the model shows how to design a course. The model does not prescribe any kind of methodology, although Hutchinson and Waters (1987) believed that ESP does not require a special methodology and that it should be taught just like general English. This claim, however, is open to discussion. For instance Strevens (1987) and Dudley-Evans and St-John (1998) argued that ESP should follow the methodology of the target discipline. Regarding the components of this section, such as course design, Hutchinson and Waters (1987) recommended that they should be subject to continuous evaluation. This evaluation has a dual role; it would inform the teacher's practices (in section 4) and provide feedback about the learners' needs in course design.

In section four, the authors recommended that the teacher, the teacher's roles, and orientation and choice of materials should be defined. They also argued that the course should be directed at the learner's needs so that motivation increases and the learner does better. However, their model fails to account for interactive aspects between the different components and their impact on one another.

3.2.3. Application of Bertin's Ergonomic Didactic Model in ESP

This model was designed by Bertin (2013) to guide ESP research. It portrays a constructivist and emergentist view of language learning where all the poles are seen as dynamic and interactive. As Bertin (2013) explained, it is meant to raise questions and key issues in ESP rather than to answer questions on what ESP is. Like Hutchinson and Waters' (1987) model, it highlights the key poles in language learning in general, namely the language, methodology, tutor, and context. In addition, and like Stern's (1991) model, it points to the learner as an essential component of the system.

Considered as a whole, the model provides opportunities to study the way each pole interacts with the other components and to understand how the way each element is constructed and impacts the system. It is clearly grounded in a socio-constructivist perspective as it assumes that the social task should trigger language production and learning processes through interaction (Bertin et al., 2010, p.5).

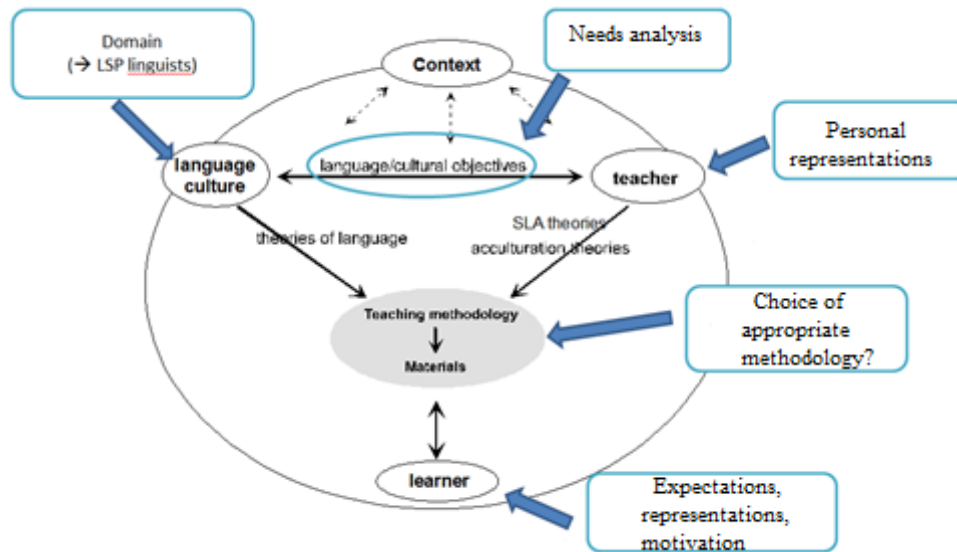


Figure 11: The heuristic dimension of the model – the case of ESP teaching (Bertin, 2013, p. 10)

Like Stern’s (1991) model, Bertin’s (2013) model represents context as a major concept in language teaching. Although Stern (1991) claimed his model to be interactive, this aspect is clearer in Bertin’s (2013) model (see Figure 9).

The model encompasses the key components in a learning/ teaching ESP situation, each of which are interconnected. These include the context, the learner, the teacher, and the language used in ESP. The learner in this model emerges with different factors and is impacted by the various teaching components. Since most ESP students are adults or students at tertiary education, they usually have their own views and expectations. The language is influenced by the domain of the learners, theories of language, and the teacher’s practices. The teacher, in turn, is impacted with several factors, such as his/her own views of SLA theories and personal representations. S/he also interacts with the other components in the learning situation, such as context, the learner, the institution, and the language of the domain. Eventually, the teacher decides on a suitable teaching methodology and selects the required material accordingly. The selection of an appropriate methodology that can help the learners meet their needs in ESP is the core of a debate between researchers in this field, as it will be discussed in Chapter 10 .

The arrows between the different poles, namely the learner, theories of learning, the language, and the tutor, mark the interconnectedness between the components. They

also show the dynamic characteristics of the different elements in a system, how they interact, work together, or impact one another.

3.3. Summary

As indicated above, every model sheds light on the seminal components of a learning/teaching situation. Of relevance to this study, the strengths of Stern's (1991) model reside in the multi-disciplinary perspective to language teaching. It identifies its key concepts and it illustrates their interactive features. The notion of interaction helps explain the notion of impact of one factor on the other and how methodology, in particular, can have its own effects on the teacher's practices and the learners' roles. As Stern (1991) argued, the model adopts a multifactor view, as no single component in the teaching of languages can have all the answers to a learning situation. It also shows the reciprocal relationship between theory and practice and that the relationship between them is interactional rather than that of a rivalry. Stern (1991) also claims that the model can be used in all language learning situations and not a particular one. However, it may be argued that ESP has its own properties and issues, which have not been addressed in this model.

Hutchinson and Waters (1987) argued that ESP has to meet learners' needs, both in terms of content and method. Learners' needs analysis is seen as an essential step in course design. The model highlights the usefulness of constant evaluation of the course materials, methods, and learners' development. This evaluation should give feedback and suggestions for change when needed in the teachers' practices and course materials. This makes the implementation of new methodologies desirable, as long as they respond to learners' needs. It also legitimizes the procedure followed in this study (i.e., the evaluation of course materials, use of methodologies, and the identification of learners' needs), which allows the implementation of a new methodology to fulfill these needs. This process is very similar to action research, which is also a component of this study.

Bertin's (2013) application of his model of didactic ergonomics in ESP is situated in a systemic approach, and, therefore, considers the interaction between various components in the learning situation. In this application, all the players are in a dynamic

state of interaction impacting one another. It looks at the learning situation as a homogeneous system and it illustrates its features of dynamism and complexity. As described in chapter 2, this approach was also adhered to and this kind of learning situation representation is needed to study the impact of problem-based learning on the EMAP learners in the context of the current study and to account for changes in learners' behaviors.

The model also considers two major issues in ESP: the interdisciplinary nature of ESP as the language of a particular domain, as well as the methodology to be followed in an ESP learning/ teaching course. Thus, the model allows re-addressing the research questions in a more structured way. As Bertin (2013) argued, it “is meant to be reconstructed in each individual case by the various actors” (p. 4). Its flexibility allows its use as a general guideline and gives room for creativity and its adaptation in different cases and objectives in research. Below is a reconstruction of Bertin’s (2013) model for the purpose of this study.

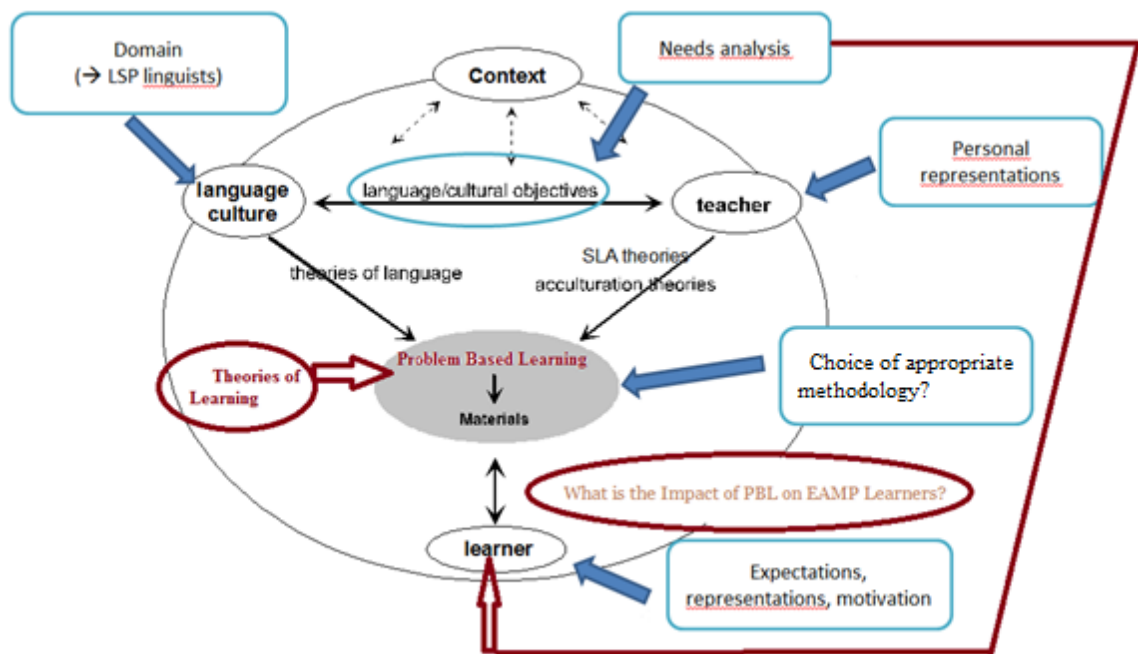


Figure 12: A Model of Language Learning in English for Academic Medical Purposes (EAMP)

In this reconstructed model, some changes have been made. First, methodology was replaced by the proposed teaching methodology in this study, namely Problem Based Learning, which was taken from the teaching of medicine or the domain of the learners.

In this study, the view is that PBL can bring practices inside the classroom from the learner's domain, define the students' roles and the ESP tutor or practitioner's roles. Therefore, the arrow between the teacher and methodology has now become two-sided. The teacher is 'free' to make a proper choice of teaching methodology that would work in his/her context, but, in return, s/he also has to abide with this choice and adopt the required changes in his her teaching practices.

The other change involves the concept of needs analysis. It seems that the view embraced in Bertin's (2013) is different from the one used in this study. In Bertin's (2013) model, the arrow is directed to the language pole. This reflects one view in needs analysis, the Target Situation Analysis approach, which is discussed in the needs analysis part of this study. As it was explained in Chapter 4, a more holistic view is embraced in this study, which encompasses both the Target and Present Situation Analysis of the learners' needs. Therefore, needs analysis should not only be annexed to the language, but also to the learner's pole. Needs analysis should also feed course design, which should take these needs as part of its main objective. Course design should also be tailored in the way that it translates the recommendation of the chosen teaching methodology. In the framework of Systemics and DST, learners' needs can be seen from a dynamic perspective as changing needs, which can be classified as before, during, and after for each given course. The learners evolve and their needs change, and, therefore, needs analysis has to be a continuous work carried out by the practitioner to meet these needs, edit course content, and methods of teaching.

Based on this model, the different components related to this study will be defined, which include: context, needs analysis, language, L2 learning, the learner, the teacher, ESP, and PBL. Brown (2007) indicates that "defining is a serious business: it requires choices about which facets of something are worthy of being included" (p. 5). Eventually, the features of each construct, that can help explain our view in this study, will be selected.

To start with, the context will be tackled. Understanding the research context will pave the way to understand the learning environment and constraints before embarking on needs analysis. Pocher (1987; 124) explained that ‘every statement about science has to be situated in its temporal and spatial framework in order to be fully understood’¹⁰.

¹⁰ “ tout discours sur la science est un discours de circonstance’, qui, pour avoir sens et être compris, doit être situé dans son lieu et dans son temps, c'est-à-dire dans ses conditions d’élaboration » (p.124).

Chapter 4: Context

Action research was identified in Chapter 1 as a context-based research approach that is directed at a particular group of learners in a specific situation or context. It is, therefore, important to understand this learning situation. McDonough and McDonough (1997) defined context as a number of factors that work together at a national, institutional, and classroom level. They explain that these factors identify each context and construct their own specific features. Some of these factors, as the authors claim, can be related to the learners, such as proficiency level, age, interests, motivation and attitude, needs and goals, learning styles, and mother tongue. In addition to these factors, the authors note other components that work together to frame the whole picture of a context, such as:

sources of policy decisions, status and training of teachers, the role of English in the country and in the curriculum, time available, physical environment of classroom and school, student- teacher ratio, class size, resources available, anticipated methodology, and the choice or imposition of course book (p.9).

While this view has a lot in common with other definitions of context in the literature, the classification of learners' factors as part of context seems to be a bit peculiar to this definition. In Stern's (1991) model and Bertin's (2013) model of language learning, which were discussed in Chapter 3, learner factors are part of the learner's component rather than context. Stern (1991), for instance, argued that to address context the researcher should find answers to questions, such as "What is the place of languages and language learning in this society?" and "What is the place of languages in the educational setting, and how is second language teaching fitted into the specific educational context?" (p. 48 - 49).

Following a systemic view in language didactics, Bertin *et al.* (2010) presented context as a major interactive pole in the didactic ergonomic model that interacts with and impacts other components in a system or a language learning situation. To these authors, context is a dynamic social construct marked by change and uniqueness. They recommended that context should be considered in any classroom investigation.

Experimental evidence suggests that the context in which learning environments operate plays such a significant part that it becomes necessary to regard it as just

another pole in the didactic ergonomics model. Indeed, as any of the other poles we have described so far, it imposes constraints upon the various actors of the teaching/learning situation and is made to evolve as a result of its interactions with the rest of the system (Bertin et al., 2010; p. 170).

Looking at context from this perspective entails the consideration of a number of components. Tapia (1994, cited in Bertin *et al.*, 2010), for instance, presented five major influencing factors that construct an organizational context:

- the staff's philosophy and type of management;
- the degree of elaboration of tools and equipment;
- the demographic structure of the actors: age, gender, training, place in the hierarchy, etc.;
- the size and shape of the organization;
- environmental factors: economic, cultural, scientific (p. 173).

A systemic view of context was also adopted in this study, which is consistent with the general approaches of complexity adopted for this study and is seen as a dynamic social construct. In the next section, the work-specific context associated with this study will be examined under three headings: macro (national), meso (institutional) and micro (classroom).

4.1. The Macro Level

Saudi Arabia was founded as a kingdom in 1937 and the Ministry of Education was established in 1956. A lot of efforts have been made to increase the number of schools in the country and make education more accessible to males and females. Every new academic year witnesses the opening of new faculties all over the kingdom (Rahmani and Alhaisoni, 2013). The International Exhibition and Conference on Higher Education is held in Riyadh every year. During this exhibition, universities from all over the world participate and sign conventions of cooperation with Saudi universities. For instance, in April 2015, 227 foreign universities participated in this exhibition (Kingdom of Saudi Arabia, Ministry of Higher Education [KSA MHE], 2015). Saudi universities are interested in self-development and exchanging experience with others around the world, which can be inferred from the objectives mentioned in the exhibition guide below.

- To provide Saudi students and universities with the opportunity to interact with international Higher Education Institutions.

- To give local universities exposure to international education standards and expertise.
- To establish academic agreements between local and international institutions.
- To encourage the development of the local Higher Education Sector through interaction and communication with International Institutions.
- To provide both international and Local Universities with a gateway through which they can meet to share and discuss their expertise and insights on the field of higher education ([KSA MHE], 2015, p.2).

This yearly event shows the effort of the country to develop its educational system and reach international standards in higher education. Efforts have also been made in the continuous establishment of higher educational institutions in the Kingdom, as shown in Table 2. If the number of faculties and colleges that branch off each university in a specific region are considered in the illustration below, the rapid growth in higher education is evident.

Government Universities	21
Primary Teacher's College for men	18
Primary Teacher's College for women	18
Colleges & Institutions for Health Science	37
Technical Colleges	12
Private Universities and Colleges	24

Table 2, [KSA MHE, 2015, p.3]

In addition, opportunities to follow higher education studies are not only offered by national universities. The statistics given in the statement below, for instance, show that thousands of female students are studying abroad for different higher education degrees. According to the Ministry of Higher Education, General Department for Planning and Statistics (MHE; GDPS, 2013), the first destination is the United States of America.

The Ministry of Higher Education is interested that study abroad programs for women students include degree levels: bachelor; master; doctorate; and fellowship. The number of study abroad women students in undergraduate level as shown in Table (4) has reached 10,516; in master 15,894; in doctorate 2,837; and in fellowship 739 ("The Saudi Woman in Higher Education", [MHE; GDPS], 2013, p. 25).

This might be one of the reasons behind the changing status of English in the country.

However, for now, higher education teachers in KSA remain mostly expatriates. These are contracted for a certain number of years (a maximum of ten years) with renewable contracts and they also enjoy many benefits. This situation might also have its own impact on the Saudi context and the neighboring regions. Syed (2003) reported that “contracted expatriate teachers are less motivated to critique existing systems (Al-Banna, 1997; Shaw, 1997), and they have little impetus to innovate or initiate change” (p. 339).

Students are typically Saudi, with a negligible number of foreigners who are children of expatriates. Saudi students enjoy many privileges; all students, regardless of their financial situations, receive a monthly scholarship. They are also provided with all the textbooks they need for all the subjects for free. The system is very lenient with the number of chances each student is given to sit for exams in different subjects.

Despite the governmental efforts to develop education, the educational system has often been criticized in Saudi Arabia. For example, at the 3rd IEA International Research Conference in Taiwan, Wiseman *et al.* (2008) reported that Saudi Arabian students scored the lowest in the 2003 Trends in International Mathematics and Science Study (TIMSS). They argued that this is an indicator that the policy-makers should pay more attention to the educational system in the country. This example shows that the problems of learning in KSA are not particularly specific to the English language, as will be discussed in Section 4.1.2., but rather an indication of the educational system in general.

4.1.1. The Status of English in the Country

In the Kingdom of Saudi Arabia (KSA), the students’ mother tongue is Arabic, and the English language is taught as a foreign language starting from grade six in primary school till the end of high school (over a period of 7 years for an average of 4 hours a week). However, English becomes the language of instruction in most subjects at the tertiary level, except for Arabic and Islamic studies. This situation is common in the Middle East (Dudley Evans & St John, 1998). Students who are accustomed to follow all their studies in their national language have to switch to the English language in higher education where English becomes the means of instruction; English-Medium Instruction

(EMI); “students have to make the adjustment from studying all subjects in their national language at school level to studying subjects such as science, medicine and engineering in English at tertiary level” (Dudley Evans & St John, 1998; p.38). This system has its own drawbacks and it affects the students’ language proficiency level, as Dudley Evans and St John (1998) contended:

Students begin the courses with a much lower level in English than in the ESL situations described in the previous section. This lower level often leads to a situation where subject lecturers, most of whom are themselves non-native speakers of English, may deliver lectures in a mixture of English and the national language. This may involve delivering the lecture in, say, Arabic, but dictating notes in English. Examinations and assignments will be written in English, but are sometimes designed so that they do not make large linguistic demands on students. Full essays or technical reports may not be required and students will be tested through multiple choice questions, calculations, diagrams and short-note answers (p.39).

In fact, this is the case within the institution associated with the present study, too, as indicated in Section 4.1.3.

4.1.2. Problems with English Language Teaching/ Learning in the Gulf region and in KSA

Students’ low level of English proficiency has been the subject of research in the region of the Middle East. While Dudley Evans and St John (1998) present this situation as a typical outcome of not using the English language at all in school except as a foreign language, other researchers claim that this is due to existing problems in English teaching and learning. For example, Syed (2003) argued that English language teaching, in the Arabian Gulf in general, has been ineffective for several reasons that he summarized in the statement below:

EFL teachers in this region have identified student motivation, literacy, underachievement, reliance on rote learning and memorization, and dependence on high-stakes testing. These issues, coupled with outdated curricula and methodologies, insufficient support systems, and not enough qualified teachers, paint a very unflattering picture of education in the region. (p. 337).

In KSA, Students’ reliance on memorization and rote learning has been outlined as a major problem that obstructs learners’ English language learning. However, the meaning and use of the terms ‘rote learning’ and ‘memorization’ must first be disambiguated. Rote learning and rote memorization have often been opposed to

meaningful learning (Mayer, 2002) or meaningful processing (Walker, 2006). Based on Bloom's Taxonomy of Educational Objectives, Mayer (2002) opposed rote learning to meaningful learning. Mayer (2002) explained that rote learning does not go over 'recalling' information and does not enable the learner to use this information in problem solving or to transfer it to a new situation. Meaningful learning, however, is associated with cognitive processes which he classifies as follows; "Understand, Apply, Analyze, Evaluate, and Create" (p. 232).

When teachers concentrate solely on rote learning, teaching and assessing focus solely on remembering elements or fragments of knowledge, often in isolation from any context. When teachers focus on meaningful learning, however, remembering knowledge is integrated within the larger task of constructing new knowledge or solving new problems (Mayer, 2002; p. 228).

While Mayer opposed meaningful learning to rote learning, Walker *et al.* (2006) contrasted meaningful processing with rote memorization. The authors explained that rote memorization simply involves shallow processing of what is supposed to be learnt.

Meaningful processing is associated with cognitive elaboration of the to-be-learned material. Meaningful processing involves relating the new information to one's existing knowledge; thus creating a more complex knowledge structure (Reder, 1979; Kardash & Amlund, 1991). Shallow processing, on the other hand, involves rote memorization, basic rehearsal, and other types of superficial engagement with the new material (e.g., simply re-reading one's class notes). Shallow processing will not typically involve connecting new information with existing knowledge nor will it involve creating integrated knowledge structures (p. 5-6).

In this regard, rote memorization can be seen as synonymous to rote learning. Similarly, Puren (1988) described memorization as the act of learning information by heart, which was used in older teaching methodologies.

*Dans les classes de grammaire, le procédé de **mémorisation/ restitution** (apprentissage par cœur en étude ou à la maison puis récitation en classe) conserve l'importance primordiale qui est la sienne depuis le Moyen-âge, tant pour les morceaux choisis et les règles de grammaire avec leurs exemples que pour le vocabulaire (p. 21).*

Following this discussion, it may be concluded that memorization can be used interchangeably with rote learning. However, since memorization can also be a stage in cognitive learning when associated with understanding, the term rote memorization will be used in this study whenever it is possible to avoid any sort of ambiguity. For instance,

in the quotes of teachers' needs analysis interviews, the term memorization was used to refer to rote learning.

In the context of KSA, just like the Gulf-region that was described above by Syed (2003), Rahmani and Alhaisoni (2013) argued that English had been given little attention by learners and “despite all the efforts made by the various bodies, the situation of teaching English in Saudi Arabia has always been in a constant state of flux” (p. 116). Fareh (2010, cited in Rahmani and Alhaisoni, 2013) pointed out some of the reasons that might be behind the students' low level of proficiency in English, such as teachers' lack of training, out-dated or inadequate teaching methodologies and testing methods, negative students' attitudes towards the English language, and reliance on rote learning instead of skills.

1. Improperly trained teachers or inadequate teaching methodology;
2. Teacher-centered rather than learner centered activities;
3. Students' aptitude, initial preparedness and motivation: School and university teachers often complain of the low proficiency of their students. They also claim that students are not motivated to learn;
4. Compartmentalization vs. whole language approach;
5. Lack of emphasis on developing skills– emphasis is rather on rote learning;
6. Textbooks and teaching materials;
7. Assessment methods;
8. Exposure to English. (Fareh, 2010, cited in (Rahmani and Alhaisoni, 2013, p. 14-15)

It is useful to note that in governmental schools, teachers are Saudi and their training in teaching has also been judged as deficient. Al-Hazmi (2003) describes the EFL programs that are graduating English teachers in Saudi Arabia as inadequate: “neither program is adequate for the preparation of EFL teachers in the Kingdom [...] in pre- and in-service education for EFL teachers” (p. 342).

This argument can be confirmed by the findings of a field study carried out by Abu-Ghararah (2014) in KSA. Abu-Ghararah investigated the problems related to speaking in an EFL classroom, in a governmental school, in Saudi Arabia. The study involved 44 randomly selected female learners in their final year of secondary education and who studied English as Second Language (L2) for six years. The results revealed several issues that could hinder learners' speaking skill development, which are summarized below:

- The learners' attitudes towards speaking English were generally negative. For example, while 2.5% of the learners chose neutral, 62.5 % of the students either disagreed or strongly disagreed that it is important to speak the English language.
- The teaching materials are not authentic and are de-motivating for the learners.
- Students do not get the opportunity in the L2 class to practice the language; "apart from reading the written text aloud and answering the teacher's questions, learners have not been given enough opportunity to practice the language" (p. 286).
- Teachers' attitudes towards errors do not encourage students to engage in speaking. Students are stopped immediately when they make mistakes; the fact that makes them reluctant to speak. This is outlined in the following statement: "In Saudi culture, mistakes are not tolerated and are considered a serious problem and a source of shame. This, in no doubt, explains why the majority of respondents stated that they would speak only if the teacher asked them to do so (item 18)" (p. 282).

These findings actually reflect the practices found in the audio-lingual method and behaviorist theories of learning, as it will be discussed in Chapter 7. The results from this study are important for the current work, as they show the problems related to learning English as L2 in the Saudi context for the learners who are about to finish their secondary education and join the Preparatory Year Colleges (a similar sample of the target population of our study).

In the context of Saudi Arabia, Al-Hammadi (2012) stated that "as far as second language learning is concerned, students often complain that they have bad memories. From recognition memory perspective, they have bad memory habits which can be the reason for poor recall" (p.83). Instead of habits, it could be said that these students have poor learning strategies that have developed from the teaching methodologies practiced in the region, which rely primarily on rote learning, repetition, and reinforcement. Examining the memory structure and how it functions, how information is encoded and retrieved (which will be discussed in Chapter 7, learning), an understanding will be generated regarding why such methodologies fail to provide the teacher with the right

techniques to enhance language acquisition and empower students with strategies to learn more effectively.

In another study, Moskovsky, Alshahrani, Ratcheva, and Paolini (2015) conducted an experiment in King Khalid University, in Abha, Saudi Arabia, which examined the correlation between learners' aptitude in English language learning and L2 proficiency development. The study involved first year male students aged 18-20 majoring in English. The results did not match the expectations of the researchers, as they reported that "either way, the results suggest that the seven-month intensive language course (involving 20 hours per week of exposure to English instruction) was not sufficient, either in length or intensity, to produce a change in language aptitude" (p. 16). The researchers worked on grammar, writing and listening skills; however, they said nothing about the method of teaching or the materials used in the experiment. They reported that their findings coincide with previous research in the country about students' achievements in English-language learning.

Low achievement in English has been reported for Saudi learners at all levels of the educational system (Zaid, 1993; Al-Seghayer, 2005; Alshahrani, 2007), and is attributed to a combination of learner-external and learner-internal factors. For example, it is acknowledged by L2 researchers and language teaching practitioners alike that language teaching/learning in the Saudi context involves limited exposure to L2 input, overpopulated classes, inferior syllabuses and substandard teaching/learning resources, inadequately qualified teachers, and unmotivated learners many of whom are only prepared to do the bare minimum to pass the course (p. 16).

In conclusion, it seems that there is a consensus about the types of problems hampering students' English language learning in Saudi Arabia, which include a lack of teachers' motivation and qualifications, inappropriate methodologies, ineffective textbooks and teaching materials, as well as students' attitude issues.

In the face of these challenges, one of the constructive measures that were taken to improve the situation for English, in particular, and study skills, in general, is the implementation of a foundation year in Saudi universities. This practice is relatively recent compared to other countries. The Preparatory Year has been implemented as a program as part of a general move in KSA following the steps of the United States to prepare students for higher education. Koch and Gardner (2014) reported the success of

the PY experience in the United States and discussed its importance in the student's preparation for higher education:

Treat the first-year experience as a part of a broader continuum – The first-year experience is but one of a number of transitions that a student will undergo, while she or he attends a university. Far too often, American higher education institutions focus heavy attention on helping their first-year students and then believe that the rest of their students' educational experience will take care of themselves (p. 38).

Aloqaili (2014) explained how this experience can be implemented in KSA with flexibility within the different Saudi institutions. He posited, however, one common objective: the preparation of an autonomous learner, “The aim is to achieve (the learner we need: independent and skilled). Taking into account some domestic and international experiences and especially in developed countries, which have a long tradition in this area” (p 60).

To avoid the policy of one size fits all; the Preparatory Years in KSA enjoy the freedom to prepare their own programs to serve the needs of students in different regions.

4.2. The Meso Level: Institutional Framework

The University of Hail, Saudi Arabia, which is under the supervision of the Saudi Ministry of Higher Education, was founded by a royal decree on Tuesday, 7 June, 2005:

The university consists of five colleges: College of Medicine & Medical Sciences, College of Sciences, College of Engineering, College of Computer Science & Engineering, and Community College. The first students were admitted on 11 February 2006. In 2007, two existing colleges joined the university, which are Teachers College and Girls Education College. These two colleges were originally under the auspices of the Ministry of Education. The university enrolment has grown to more than 16,000 students (“The Portal of the Ministry of Higher Education”, 2013).

However, as with many parts of the kingdom, the university is expanding so fast that each new academic year witnesses the opening of new faculties.

The Preparatory Year (PY) started in the University of Hail, 2006, when the university was established. It was the solution sought to help students cope with challenges they had faced in studying their university subjects in several disciplines in English; “The Preparatory Year Program aims at equipping the students with the necessary university skills and developing their English language abilities to prepare

them for different academic paths” (UOH PY Student’s Guide, 2013-2014, p. 2). The PY in UOH primarily involved science colleges at the beginning, but grew to include the medical school and the Health Colleges in 2011.

The medical school, which was created in 2008, had run its own first year for three years before it was taken over by the PY. In 2010, only the students of the Colleges of Sciences had to follow the PY program in UOH. The medical students were still under the medical school and the students’ first year was just considered as a first-year of the medical school. In 2012, the students in humanities also had to go through the PY program and a new college in the PY was established, the Preparatory Year College of Humanity. In the same year, the first year medical school was taken from the medical school to be taught by the PY and the Preparatory Year Health Colleges were created (PYHC).

In the PY, students follow a program that helps them to get ready for their university majors. They study university skills and other subjects, according to the needs of the discipline they will specialize in, but English remains the major subject in students’ timetables (20 hours a week/ four hours a day for the Health Colleges and Science Colleges).

In the PY, the male and female heads of English departments at the two branches (i.e., teachers from the department chosen to fulfill this position) usually decide on the course materials and pacing schedule as well as the contents of exams and quizzes for the English subject. It is important to admit that several changes have been implemented in the teaching and assessment systems between 2011, when this work was started, and the present. Now, in 2014-15, exams are held twice within a quarter. The students sit for a midterm and a final exam. The midterm exam counts for 25% of the pass grade and the final counts for 50%. These exams are based on the materials taught in the textbooks and usually mirror this content (appendix, number 1). Two years ago, the quizzes used to be prepared and administered by teachers without much control. Teachers had to send the administration two grades for each student per quarter. However, now all the students sit for four common thirty-minute-weekly quizzes, the coefficients of which contribute 10% of the total grade. In addition, students now sit for four continuous assessments (i.e.,

quizzes) in the same week and they count in total for 10% of the exam grade. The other 5% of the assessment mark is allotted to attendance. If students have fewer than 15 absences per quarter, they are awarded 5 marks/ 5% of the total grade. This procedure aims at encouraging the students to attend all their lectures.

It is also important to know that decisions about what textbooks will be used, is most of the time, made based on the availability of textbooks in the country rather than the methodology underlying them. This is due to two major reasons: first, ordering books involves a long procedure. Second, a huge number is needed each quarter (about four thousand textbooks for the male and female colleges of the PY). This is usually done in a hasty way and without long-term planning. When they join the PY, the students' low level of proficiency in the English language also puts constraints on the choice of the textbooks that are to be used.

Another important factor that might contribute to establishing a comprehensive description of the PY is the number of teachers required to cover all these teaching hours (over 120 teachers each year for the female branch in the PY alone). It is not easy to find English teachers who are native (which is a preference of the department) and have specialized in English, as the demand for English teachers in KSA is extremely high. Therefore, most of the native English teachers who join the PY have little or no teaching background. They can also be from different fields, such as engineering or accountancy. In addition to a bachelor degree in any subject, the only required qualification for teaching the English language is CELTA (Certificate in English Language Teaching to Adults), which is a basic training in teaching offered to non-specialists in English language teaching. As newcomers to the field of teaching, these teachers might have certain challenges to face regarding the knowledge of language teaching methodologies, techniques, or testing methods. Besides, teachers' professional development opportunities from professional bodies almost do not exist.

This might be one of the reasons of the administration (through the heads of departments) controls everything including the choice of materials to be taught, the setting of the pacing schedule, the quizzes, and exams. For instance, the pacing schedule

is often rigid and teachers are told to follow it to the letter, even if they see that there is room for improvement or it contains certain inadequacies.

This policy is not without drawbacks. Dörnyei (2001) reported out five major factors that could have a negative impact on teacher motivation. One of these factors is “the inhibition of teacher autonomy by set curricula, standardized tests, imposed teaching methods, government mandated policies and other institutional constraints” (p. 165). The other factor presented by Dörnyei (2001), which is relevant to the educational context in this study, is “content repetitiveness and limited potential for intellectual development” (p. 165).

In 2008, when the medical faculty was founded in the University of Hail, there was no preparatory year and English was taught in an intensive course of 14 hours per week during the first year of studies in medicine. At that time, only 32 students were enrolled in one single section for two consecutive years. In 2012, the PY took over the first year from the Faculty of Medicine and more students were allowed to be admitted (around 350 students each academic year). These students study the same program at the Preparatory Year Health Colleges. As the name may infer, students are no longer admitted to the medical school from high school. Now, they are first admitted to the PYHC, and, at the end of their academic year, based on their scores obtained, they are assigned to the medical faculty, applied medical faculty, dentistry, or pharmacology. In 2012-13, another faculty was established; the faculty of nursing, and students in this branch were also admitted to the PYHC to study the same program as the medical students. These changes have their advantages, but they also have a lot of limitations. Regarding the English program, students who will join the faculty of nursing, for instance, and those who will join the medical school are usually of different caliber, different attitude, and they have different language needs for their future studies. Studies in the literature are scarce when it comes to this topic, and it was not possible to find any comparative study between the needs of the two disciplines. In the PYHC, the medical and nursing students have to study the same textbooks and to follow the same programs, and the students who score the lowest at the end of the PYHC go to the nursing faculty. Following the same program is challenging for the nursing students and sometimes de-

motivating. These students also may hold back the medical students when it comes to designing exams or setting the pacing, as these have to target the mainstream students. When this study started in 2011, things were different and the study targeted the future medical students before the nursing faculty was established.

In 2012, the PYHC eventually had to move from the medical school buildings to the same campus as the other preparatory year colleges. This created a physical gap between the medical school and the PYHC, which originally targeted the needs of this school. Teachers of medicine and English used to be part of the same body, administration, and buildings, but this was no longer the case after 2012. A few years later (2014-15), teachers in the two colleges no longer communicated and access to the medical students, program, and teachers of the medical subjects became difficult. What made the situation worse is that teachers, as well as the administrators in this dynamic context changed, and people that were known when this study started had left by the time more empirical work was required. Here, one is reminded of Narcy-Combes J-P's (2005) recommendation that action-research should not exceed three years. In KSA, however, research processes might need to be finished even faster.

The students who enter the PYHC have different attitudes towards language learning, but the majority cannot write, read, or speak the English language. On the first day at college, they are given a placement test to determine their level of English proficiency. This test is based on grammar knowledge and it draws heavily on the grammar tests in Headway textbooks (appendix number 2). This choice reflects the type of syllabus the institution targets and the structural syllabus, which are the foundations of grammar-translation and audio-lingual methods (Ellis, 1997) and have been criticized in several works (as discussed in Chapter 7 on language learning).

After this test is taken, the students are streamed into four different levels based on their results: Level 1 is for starters (students who do not know the English alphabet and the very first language grammar basics). Level 2 is for beginners, Level 3 is for elementary, and Level 4 is elementary to pre-intermediate. Levels 3 and 4 are 'health oriented'. These levels, however, cannot be easily matched with the ones in the Common European Framework of Reference (CEFR). The reason is that the placement test is based

mostly on grammar knowledge, whereas, in the CEFR a different approach is followed; “The approach adopted here, generally speaking, is an action-oriented one in so far as it views users and learners of a language primarily as ‘social agents’” (CEFR, p.18). The classification of levels in the CEFR is also based on the learner’s ability to understand and use the target language through fulfilling a specific task. This is outlined in the CEFR’s global scale in Figure 10 below.

Proficient User	C2	Can understand with ease virtually everything heard or read. Can summarise information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognise implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.
Independent User	B2	Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.
Basic User	A2	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared to help.

Table 3; Common Reference Levels: global scale (CEFR 2001, p. 24)

In the context of the present study, it is not possible to claim that the students who are assigned to the elementary level, for instance, can be placed in the basic level A1 as it

is presented above in figure 10. The reason is that most of the time students who are assigned to the elementary or even the pre-intermediate level cannot necessarily speak or write the language or perform any productive skills. In fact, this factor can put into question the validity and reliability of the placement test as an instrument to assess the learners' levels in L2.

In each level within the institution associated with the current study, the students are further streamed into sections according to their results in the placement test, which usually host 20 to 40 students. However, this number can change depending on the availability of the faculty members for each academic year (as many faculty members leave each year and many join sometimes after the academic year starts). To show the levels of students when they reach the PYHC, the statistics of students' distribution in September 2013 have been taken from the Students' Affairs Service as an example.

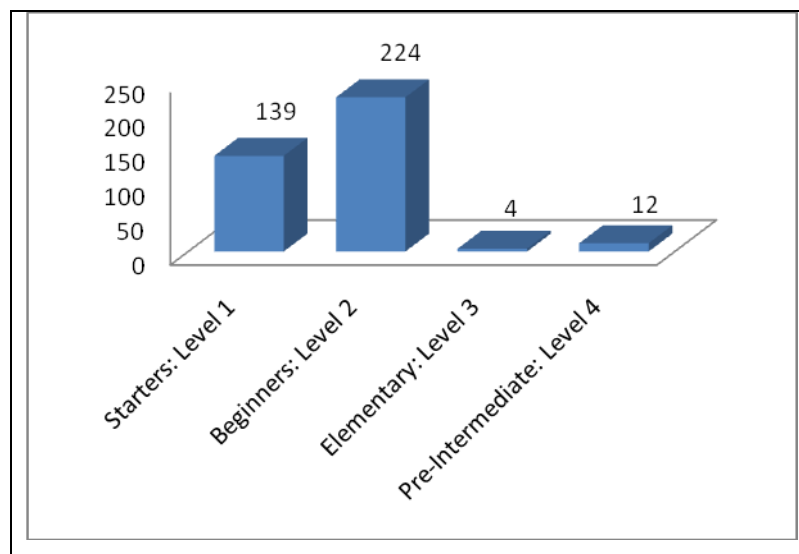


Figure 13; Number of Students Sorted by Proficiency Level in the English Language Program, at PYHC, in September 2013

After taking the placement test, these 379 students were assigned to different levels: starter, beginner, elementary, and pre-intermediate. Thirty-seven percent of these students could not pass the Starter Level, whereas 59% passed the Starter Level and joined the Beginner Level. The total number of students who were placed in these two low levels makes up 96% of the whole number of students who joined the PYHC. The other 4% of students were placed as follows: 1% in the Elementary Level and 3% in the Pre-Intermediate Level. However, because the placement test is based only on grammar,

it does not reflect the students' levels across the different skills, such as reading, listening, or speaking.

It is worth noting that all these students studied English as a foreign language for 7 years: one year in the sixth grade in the primary school and six years from grade 7 to 12 in junior high school and high school. This might reflect accumulative problems in the students' language learning.

The PYHC students are usually considered *'la crème de la crème'* of all PY students. Although they share common language problems with the other learners, they are usually motivated and they compete for the medical schools, as usually only 20% of them will join these schools. However, this condition also changed after the enrollment of the nursing students in the PYHC.

In the PYHC, the students study writing and grammar in the morning and reading in the afternoon from one elementary set that is 'health' oriented, which is considered in the needs analysis. Listening is not taught and speaking is not included in these materials, unless the students are answering the teacher's questions. If a teacher wants to add teaching materials, s/he has to get them approved by the course coordinator first so that they are screened for appropriateness, such as cultural content for instance. However, because of the number of quizzes and exams and the tight pacing schedule, teachers usually follow the books and make sure to cover all the questions included, especially considering that exams mimic the content and form of these books.

It is useful to note that changes are being made and this context might be different again in a couple of years. For instance, in 2013, the department introduced a speaking exam. This change, however, was not welcomed by teachers because speaking is not practiced in class. To make it easier for the students, the department decided that teachers give the students the speaking exam questions two days before the exam. The results, as outlined in the needs analysis in Chapter 5, are that students learn paragraphs by heart and recite them in the speaking exam.

4.3. The Micro Level: The Classroom in PYHC

Each class usually hosts between 20 and 40 students from 18 to 20 years of age, with the students comprised of female Saudis that have similar cultural and educational backgrounds. Students usually have a passive attitude towards homework or studying outside the classroom. If homework is assigned, typically a small minority will do it even within sections with good learners, so all L2 learning/teaching takes place within the classroom. Students also often have the option to choose their teachers while registering for their subjects through an online system.

However, the English teacher is an expatriate who has to be aware of cultural differences, topics not to be discussed in classes, and teaching materials that might not be appropriate for the local context. These students are taught by two teaching partners; one for the first two lectures and one for the third and fourth lectures.

All classrooms are equipped with overhead projectors, but these are mostly used to display the course book content (books are usually scanned for teachers). This makes the work easier for the teachers and simpler for the students, as it allows them to make corrections in the right place and copy the answers correctly. Students are not expected to take notes all the time and this procedure helps them to follow the teacher better.

There are plenty of individual seats for the students that the teacher can easily arrange in the way s/he wants, but students seem to be always seated in rows in our classes. This might indicate the absence of collaborative learning in class. The atmosphere of frontal teaching is also present in which students are listening to the teachers' talk.

The English course at the PYHC is divided into four courses taught at four different levels. During the first three quarters/ levels, students study English for General Academic Purposes (EGAP). During the 4th quarter, Level 4 students study a 'health' oriented English course. In theory, this course is supposed to be a form of English for Academic Medical Purposes (EAMP); however, in practice, as the needs analysis in Chapter 5 suggests, this course is rather oriented for the health profession with general public health topics.

4.4. Summary

In this chapter, the context associated with the present study has been described at the macro, meso and micro levels. English as L2 in KSA is needed for higher educational studies, but English language teaching is facing many challenges related to textbooks, methodologies, teachers, and students' attitudes. Some of the pertinent institutional constraints have also been outlined, which will be discussed further in the next chapter, which deals with the needs analysis. In the following chapter, the literature on needs analysis will be reviewed and the findings of the needs analysis that was conducted within the institution will be reported.

Chapter 5: Needs Analysis

5.1. Needs Analysis Theoretical Framework

5.1.1. Types of Needs Analysis

Needs analysis (NA) in English for Specific Purposes has gone through different developmental stages and orientations since the 1960's. These include the target situation analysis (Munby, 1978), a combination of present situation and target situation analysis (McDonough, 1984; Robinson, 1991), the strategy approach (Allright, 1992, cited in Jordan, 1997), task-based needs analysis (Long, 2005) and more recently educational engineering analysis (Colpaert, 2010).

An example of a target-oriented approach was offered by Munby's (1978) model, Communication Needs Processor (CNP). Hutchinson and Waters (1987) argued that this model was effective at identifying the learner's target situation communicative needs at a time when researchers were rather pre-occupied with the analysis of register and grammar needed in the target situation. They explained that, in this way, the model moved NA a step further. McDonough (1984) also described this model as "a landmark in the development of ESP" (p. 31).

However, this model has been criticized for its implementation complexity (McDonough, 1984; Hutchinson & Waters, 1987; Jordan, 1997). West (1994, cited in Jordan, 1997) criticized Munby's (1978) model for collecting information about the learner and not from the learner:

[Munby's] model collects data about the learner rather than from the learner...As a reaction, more recent needs analysis procedures have been developed which deliberately adopt a very different starting point, reasserting the value of the judgment of the teacher or involving the learner from the start (cited in Jordan, 1997, p.24).

Similarly, McDonough (1984) criticized this model for being target-oriented and concerned with the 'end-product' idea only. He summarized the type of information it collects about the learner as follows:

- purposive domain: occupational/academic framework in general: study/job description in detail
- Setting: the time and place;

- Interaction: the role(s) in which the participant finds him/herself, in terms of status age group and social relationships;
- Instrumentality: Essentially whether language will be used as spoken or written and whether communication will be direct, for example face to face or indirect (for example print or telephone)
- Dialect;
- Target level: Level of proficiency that will be required;
- Communicative event that the learner will have to do in English
- Communicative key: the manner in which communication needs to be carried out. Such terms as 'formal', 'authoritative', 'biased' and 'friendly' (McDonough, 1984, p. 32) .

McDonough (1984) also criticized this model for representing an idealized point of view assuming the investigator has both time and access to the target situation. He also argues that it fails to encompass all the necessary factors for an effective NA and suggested extending this model to include: “goal specification-individual, goal specification-group, present and future needs, context, ‘felt’ needs, and external demands” (p. 40).

At this stage, a new concept emerged, learners’ present needs, which completed the vision of NA. Robinson (1991) argued that goal-oriented needs analysis fails to identify a learner’s needs, as it only considers objectives and does not account for many factors like students’ personal aims, wants, desires, and limitations. Robinson (1991) classified needs analysis as Target Situation Analysis (TSA) and Present Situation Analysis (PSA), suggesting that “needs analysis should be seen as a combination of both” (p. 9). She also presented different views of NA and claimed that many of them should be seen as complimentary to one other. In addition to the two previous classifications of NA as TSA, PSA or a combination of both, Robinson (1991) stated other types of needs analysis, among which is the process-oriented approach of needs analysis: “Third we can consider what the learner needs to do to actually learn the language. This is a process-oriented definition of needs and relates to transitional behavior, the means of learning” (Robinson, 1991, p.7-8). This approach looks at what the learners need to do to learn the language and addresses their desires as well as their limitations. It can help the researcher identify problems related to learners’ strategies that hinder their language learning. Allright (1992; in Jordan, 1997) referred to this approach as *the strategy approach*. He explained that it targets learning and teaching methods and allows the investigation of teaching methodologies when there is a belief that they are inappropriate to meet the

learner's needs. Jordan (1997) reported that Allright (1992) was a pioneer in this type of analysis. According to Jordan (1997), the strategy approach accounts for students' problems with poor learning strategies such as rote learning, passive attitudes, and dependency on teachers.

Problems have arisen where students use learning strategies or styles that are perceived by teachers to be inappropriate or inefficient e.g. rote learning and a passive teacher dependent approach to language learning. In this case, it becomes important for teachers in EAP courses to raise awareness in learning strategies and methods of teaching. Consequently learner training and the development of learner autonomy becomes important (Jordan, 1997, p. 27).

This approach is not pre-occupied by language items that the learner has to master in a course for a target situation, but rather aims at identifying learners' poor learning strategies and inadequate methodologies that hamper learning. In this way, the analyst can propose alternative ways to mend the present situation and allow students to develop autonomous language learning.

To conclude, the choice of a particular type of needs analysis depends on the objectives of the analyst. Each needs analysis, as Robinson (1991) denotes, has to be catered to serve the researcher's goals. She argues that two analyses of the same group of learners' needs conducted by different analysts can end up showing different needs: "the needs established for a particular group of students will be the outcome of a needs analysis project and will be influenced by the ideological preoccupation of the analysts" (p.7).

5.1.2. Sources of Information in Needs Analysis

Regarding the sources of information in NA, Robinson (1991), for instance, recommended consulting "the language-teaching institution (teachers and administrators) and those who are or will be concerned with the students' specific job or study situation" (p.11). She argued that most of the time teachers are able to perceive the learners' objective needs and the students perceive their subjective needs. However, it is possible that learners are not clear about their subjective needs like the need to develop confidence. This might suggest that a combination of students' needs, as they see them and the teachers' views can be more enriching in a NA.

Like Robinson (1991), Long (2005) recommended involving the target situation experts in a NA to guarantee its success. For Long (2005), NA is about identifying the learners' needs and making the course more useful and purposeful for them. This view of NA might be considered as a new move in the history of NA, as it represents an adaptation of needs analysis to action-oriented language learning and adjusts itself to Task-Based Learning requirements. Long (2005) explains that NA is a necessary stage in the design of every language course, whether general or specific, so that it becomes oriented to the learner's current and future use of language. The language view behind this type of needs analysis is that language should be taught to enable the learners to use it in different situations, just as in the action-oriented approach in language learning.

General (language for no purpose) courses at any proficiency level almost always teach too much, e.g., vocabulary, skills, registers or styles some learners do not need, and too little, e.g., omitting lexis and genres that they do. Instead of a one-size-fits-all approach, it is more defensible to view every course as involving specific purposes, the difference in each case being simply the precision with which it is possible to identify current or future uses of the L2 (Long, 2005; p.19).

Long (2005) also argued that a Task-Based NA is very useful, as it accounts for both language and skills in the target situation. It serves to identify the linguistic items needed to carry out a task as well as the skills related to the performance of a task. For Long (2005), the most insightful and informative needs analysis is the one that can indicate whether the student is able to do a task in the target language after fulfilling the course that aims at preparing him/her to do so. This information, according to Long (2005), can be gathered by having unstructured interviews with experts in the target situation or after the course when learners are on their real professional tasks. He illustrates his argument using the NA carried out by Auerbach and Burgess (1985) on tourist industry workers, who reported great discrepancies between the language modelled for learners in textbooks and the language as it is really used in target situations.

This may not affect profits for textbook writers and publishers, but it can have serious consequences for learners. Thus, with considerable justification, Auerbach & Burgess (1985, pp. 478-90) strongly criticized authors of 'survival English' texts for producing materials which modeled oversimplified language, inauthentic communicative structure, and unrealistic situational content (Long, 2005; p. .35).

This approach was followed by Bertin and Bertin (1993) in a needs analysis they performed to identify English learners' needs in the field of international transport. As the

date may indicate though, this was the time when language didactics was concerned with competences rather than tasks, but the procedure is very much the same.

Le deuxième problème qu'il nous a fallu aborder est celui de la définition de ce que nous avons qualifié d'« interface utilisateur », pour reprendre la terminologie de l'informatique, c'est à dire des situations dans lesquelles l'opérateur se trouve en contact avec la langue anglaise, dans le cadre de son activité professionnelle (Bertin & Bertin, 1993, p. 227-228).

This study showed the importance of the authenticity of the task, just as in action-based learning. Eventually, for the purpose of the language needs identification in the target situation, the researchers involved stakeholders by sending a questionnaire to different companies related to the learners' fields. This procedure was useful to identify learners' future needs in the workplace in terms of language and the tasks they have to perform. Long (2005) further justified the necessity to follow such an approach, as pre-service learners are less likely to identify their future needs in the workplace.

While it would be comforting to assume otherwise, learner expertise is by no means guaranteed. Learners may be 'pre-experience', or 'pre-service' [...]. Alternatively, they may be 'in-service', [...] All these individuals can sometimes provide useful information on such matters as their learning styles and preferences, i.e., partial input for a means analysis. Understandably, however, they tend to make inadequate sources of information for a needs analysis (NA), since most in-service learners know about their work, but little about the language involved in functioning successfully in their target discourse domains, and most pre-experience or pre-service learners know little about either (p.20).

While the usefulness of this approach in a needs analysis is acknowledged, like Robinson (1999), it is suggested that it be combined with other approaches that focus on the learners' needs in terms of learning strategies, for instance, and wants.

Following Long's (2005) reasoning may result in overlooking the present situation needs and in not accounting for the learners' personal needs, which can have a negative impact on students' learning. To back up this claim, Colpaert (2010) and his team's decades of research can be referred to with regards to the design of pedagogical work to help students improve their language learning in different languages, fields, and places in the world. Colpaert's (2010) approach in needs analysis puts emphasis on the utility of considering learners' needs from the learners' perspective in an approach to needs analysis, which he called Educational Engineering. In his article *Elicitation of Language Learners' Personal Goals as Design Concepts*, Colpaert (2010) explained that learners' personal goals should be elicited and identified first, and then pedagogical goals

will follow. Colpaert (2010) argued that integration of goals into the design will provide a compromise to the learners to invest themselves in what they have to do.

Personal goals allow the user to more quickly grasp the concept and the goal of a particular system or environment. The integration of personal goals into the design construct leads to acceptance (face value and validity). In a second step, learners follow a commensurate effort pattern, making more and more effort to the extent to which they get more and more reward. Gradually in design, the focus is then shifted from personal to pedagogical goals (p.270).

He also explains that this method ensures the efficiency of any work designed for learners, as it implements what helps them to overcome problems like motivation and to foster their learning. Colpaert (2010) defines personal goals as follows:

Personal goals seem to be non-conscious or unconscious volitions related to a specific learning situation. They are not linked to concrete actions, but mostly to states of mind or feelings. Personal goals are not related to life-in-general (like be happy, rich, and healthy), but they mostly spring from attitudes toward the learning situation. Personal goals are certainly individual to a large extent, they differ within a group, but it has always been possible to group them or find some kind of common denominator. [...]
More importantly, personal goals are design concepts derived from an abstraction of hidden factors that stimulate or hinder a group _ or subgroups, personas _ in the learning process. They are not necessarily psychological realities, which would be hard to prove. They are assumptions about some aspects of the user which have appeared to be of decisive importance for the design process (p.269).

According to Colpaert (2010), personal goals are the factors that can enhance or hamper a student's learning, and, for this reason, they should be included in the work design.

Brindley (1989, cited in Finney, 2002) recommends that needs analysis should be both product-oriented and process-oriented to be effective. By product oriented, he means language-focused and by process-oriented he means learner-focused: "One aimed at collecting factual information for the purposes of setting broad goals related to language content, the other aimed at gathering information about learners which can be used to guide the learning process once it is underway" (p. 64, cited in Finney 2002 p. 75).

5.1.3. Methods of Data Collection in Needs Analysis

Regarding methods of data collection in a needs analysis, different methods and instruments have been described by authors (e.g., Hutchinson & Waters, 1987; Jordan, 1997; Long, 2005; Robinson, 1991). Jordan (1997) offered a summary of data collection methods in a needs analysis in figure 14, below. He also recommended that the analyst keeps to what is relevant to his/her own work and feasible in terms of “time, money and resources” (Jordan, 1997; p. 40).

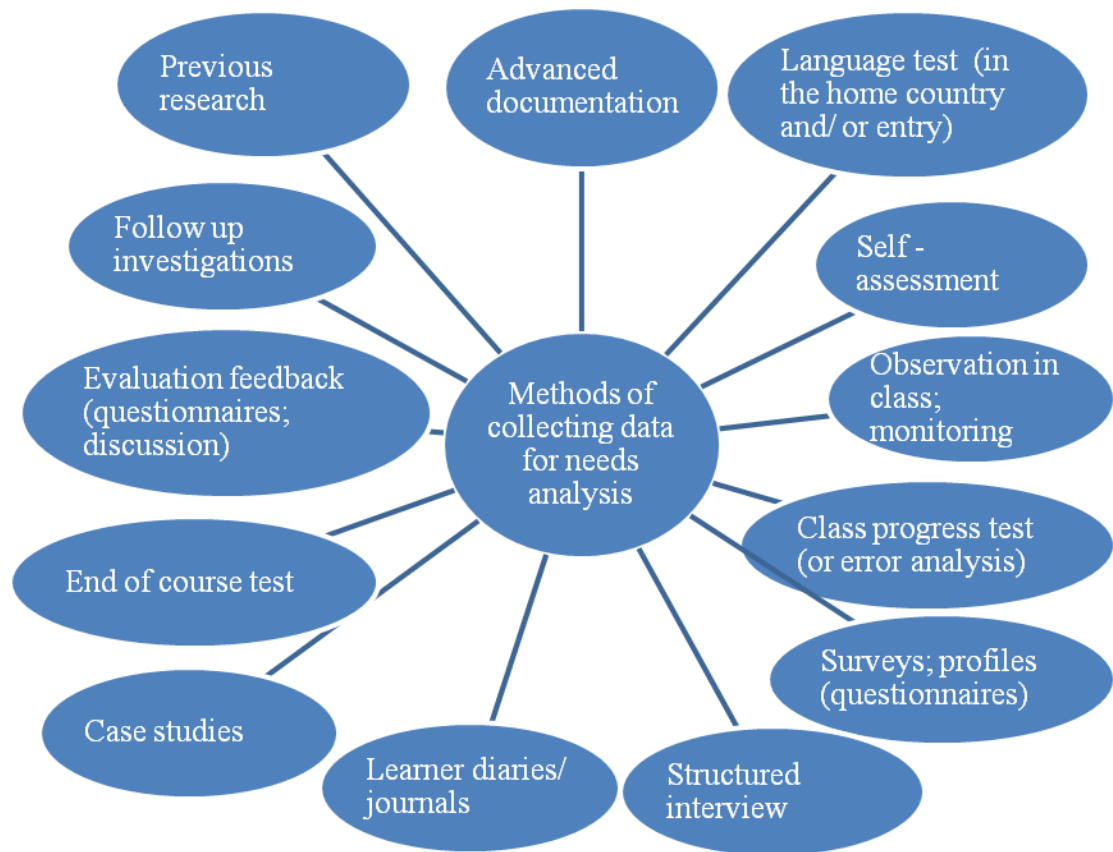


Figure 14; Methods of Collecting Data for Needs Analysis (Jordan, 1997, p. 39)

For the needs analysis in this study, interviews, questionnaires, and advanced documentation were used. Although Jordan (1997) only included structured interviews in his classification, McDonough and McDonough (1997) included all three types of interviews as tools to collect data: structured interviews, semi-structured interviews, and unstructured interviews. They also reported that these three forms are “a very basic

research tool in social science” (p. 182). The advantage of semi-structured interviews as McDonough and McDonough (1997) debated is that they offer more flexibility and insight into the probed topic where the interviewer remains in control of the conversation:

The interviewer, then, remains in control of the direction of the interview but with much more leeway. Although this format has characteristics of both other types, it is usually regarded as being closer to the qualitative paradigm because it allows for richer interactions and much more personalized responses than the quasi-automaton interviewer armed with entirely coded questions (p. 184).

For Jordan (1997), questionnaires can be used for different reasons, among which conducting follow up investigations.

Follow up investigations can be carried out sometime after a course finished, both with the students and the receiving subject specialist department. With students this often takes form of a questionnaire designed to ascertain in the light of their subsequent experience with parts of the course they found most and least useful (p.30).

Another method of NA, as illustrated in Figure 10 above, is advanced documentation. Advanced documentation refers to the course materials used in any course which precedes the ESP course.

In addition to the identification of data collection methods in NA, Jordan (1997) provided a series of questions that have to be asked for any needs analysis. These will serve as a checklist for this study:

- Why is the analysis being undertaken?
- Whose needs to be analysed (the students’; the sponsors’ institution or country, the specialist’ department.;
- Who performs the analysis;
- What is to be analysed? (target situation; present situation; deficiencies; strategies; means; constraints; necessities; lacks; wants;
- How is the analysis to be conducted? (tests; questionnaires; interviews; documentation;
- When the analysis to be undertaken? (before the ESP course; at the start of the course; during the course; at the end of the course;
- Where is the ESP course to be held? (p. 23)

5.1.4. Triangulation of Sources

Long (2005) stated there are five different types of triangulation: “Triangulation can involve comparisons among two or more different sources, methods, investigators or (according to some experts) theories, and sometimes combinations thereof” (p.28). The triangulation of sources is one of the most common forms of triangulation.

As it has been discussed in the previous section, different sources are often used to collect data in needs analysis. When these sources are used together to find similar information, these sources are said to be triangulated. The triangulation of sources is a common practice in NA. Long (2005) defined triangulation as a procedure that helps researchers to increase the credibility of their data interpretation: “*Triangulation* is a procedure long used by researchers, e.g., ethnographers, working within a qualitative, or naturalistic, tradition to help validate their data and thereby, eventually, to increase the credibility of their interpretations of those data.” (p. 28). Stake (2005) argued that it is a form of confirmation of findings, a ‘win-win situation’ that gives the researcher confidence to go ahead with firmer steps.

We saw that triangulation may be a form of differentiation (Flick, 2002). It may make us more confident that we need to examine differences to see important multiple meanings. You might call it win-win situation. If the additional checking confirms that we have seen it right, we win. If the additional checking does not confirm, it may mean that there are more meanings to unpack, another way of winning (p.124).

5.1.5. Summary

Needs analysis in this study is part of the diagnostic stage of this action research. The objective of it is to identify the factors hampering English language learning in PYHC and to find out the extent to which the current course is effective at meeting the learners’ needs in the target situation. To achieve the aim of this study, a ‘Strategy Analysis’ was partially followed. The reason is that this type of analysis accounts for learners’ needs from a student’s and teacher’s perspective and addresses teaching methodologies and students’ poor learning strategies. Long’s (2005) needs analysis focuses on the target situation needs, mainly for vocational purposes, but the same question from a different perspective may also be asked; that is, whether the students are able to perform study tasks in the target language when they leave the PYHC and join the medical school. Eventually, whether the same problems regarding their learning are transferred to the target situation or not will be ascertained. This step is also similar to what Jordan (1997) referred to as follow-up investigation; Jordan recommended analysts perform a follow-up investigation in the target situation when learners are in service. Eventually, for this study, second-year medical students were also included in order to

determine the extent to which the PYHC English program was useful to them in studying their field subjects in English.

5.2. A Needs Analysis at the PYHC

To account for the target situation, a questionnaire was administered to the students who finished level 4 and were studying in the second year Medical School. As explained in the context of the study, in the medical school English is used as the Medium of Instruction (EMI). Students were asked to report the language problems that might hinder their understanding of a medical subject and to indicate the current strategies they use to overcome these problems. It was also important to determine whether the students carry on using the same methods they use in the PYHC to understand their subjects that are taught in English. Students were also asked to give feedback on the relevance of the ESP course, that they took at the PYHC, to their current studies and the extent to which they thought it was beneficial to them.

It could have been useful to consult the teachers of the target situation, but this was neither easy nor possible. This may be reported as one of the limitations of this study within the context. Teachers, who were not Saudi, but mostly of one Arab nationality, showed an attitude of over-precaution and were uncomfortable with the idea of looking at the English problems facing their students or to involve English language teachers with their work. In the literature, however, it was reported that this situation is quite common in the context of the Middle East where English becomes the means of instruction in higher education (EMI). Dudley-Evans and St John (1998) cited Graves (1975) who commented on the situation as follows: “the crucial thing is then to find out how English is really used. This may, of course, be quite difficult as the question of whether the course is truly English medium may be an extremely sensitive one” (p. 39). This over-precaution, however, can conceal some language problems in delivering the course in English, which Sasajima (2013) reported in the Malaysian context. She debated that the implementation of EMI had not always been a success:

However, the implementation of EMI may in some contexts be broadly speaking considered a failure such as was the widespread teaching of mathematics and science through English in Malaysia (Sopia et al., 2009). The primary cause of failure has been identified as insufficient teacher in-service training. Many math and science

teachers used English mechanically and were unable to create a meaningful learning environment (p.57).

Therefore, in this study, the only source of information in the target situation was the students in the medical school. For the present situation analysis, a semi-structured interview was used with PYHC teachers to provide an evaluation of what is going on in terms of the methodologies used and to identify learners' language learning issues. For the same purpose, a questionnaire was administered to Level 3 and 4 PYHC students to determine how language teaching/ learning take place from their perspectives. The textbooks used in the PYHC English program in the two courses were also examined: the course of English for General Academic Purposes, which Jordan (1997) calls the advanced documentation. The current books used for the ESP course were also examined. These different sources of data were used to find out what language learning problem or problems would emerge.

5.2.1. Advanced Documentation and Underlying Methodologies

Before discussing the teachers' opinions about learning/ teaching methodologies and students' skills, it is useful to start with the examination of the textbooks that are being used in the PYHC and their underlying methodologies. This is what Jordan (1997) calls advanced documentation, as was explained in this chapter. Hutchinson and Waters (1987) also recommended this process, which they refer to as material evaluation. The course textbooks used for the general language courses, which precede the ESP course, will be discussed first. Dudley-Evans and St John (1998) argued that learners' strategies are usually transferred from the general to the ESP course. This is why it is important to consider both types of textbooks.

In the first level, students use *Fresh Start* (appendix number 3). This textbook is a compilation of some grammar exercises, prepared by some teachers, for beginners. This course material offers a lot of vocabulary lists out of context, repetition of some grammar structures like sentence forms, how to use adjectives and nouns, and it is mostly taught at the sentence level in a deductive way. For Levels 2 and 3, *Headway Elementary* is used. However, only grammar and reading are taught; speaking, writing, and listening are

excluded, as recommended by the department since writing is done in another separate book (i.e., *Keep Writing*). For the writing skill, students study *Keep Writing 1: A Writing Course for Arab Students* for Level 2 and *Keep Writing 2: A Writing Course for Arab Students* for Level 3, which are written by Harrison (1989).

This choice is a reminder of the grammar-translation method that focuses on reading and disregards listening and speaking (Richards & Rogers, 2001), as it will be discussed later. In Level 4, an elementary set of textbooks, which are health oriented, is used. This set comprises reading, grammar, writing, and listening. However, listening was not taught for more than three years. In reading, students read a text and answer some comprehension questions, such as ‘*tell me why*’, as one of the interviewees reported (appendix number 4). In the grammar book, the rules of grammar are explained to the learners and presented in context at the sentence level and then practice is provided also at the sentence level (appendix number 5). The writing book comprises eight units that target certain functions like comparing and contrasting, expressing cause and effect, and describing a process.

This situation is very similar to the grammar-translation method in many ways as it was presented in Richards and Rodgers (2001). The authors also report that although this method was challenged decades ago in Europe, it is still widely used in many parts of the world. They state that this method focuses on reading, writing, and grammar, but disregards speaking and listening: “[In the grammar translation method] reading and writing are the major focus; little or no attention is paid to speaking or listening; accuracy is emphasized; grammar is taught deductively- that is by presentation and study of grammar rules” (p.6). In the context associated with this study, grammar is also taught deductively at the sentence level and accuracy is paramount. According to Puren (2010), rote learning or memorization is also very popular in this method.

The writing textbooks for Levels 2 and 3, *Keep Writing*, follow the product approach. Dudley-Evans and St John (1998) argued that this approach is rooted in the behaviorist learning theories, which view learning as a mechanical process or habit formation. It is also called the model-based approach as Dudley-Evans and St John

(1998) reported, because “the focus is on the features of the actual text-which is a model of the end-product that writers have to produce” (p.116).

Robinson (1991), cited in Dudley-Evans and St-John (1998), summarized the stages involved in this method: “Model text→ Comprehension/Analysis/Manipulation→ new input→ Parallel text” (p. 116). The students first read a model text and familiarize themselves with its layout and linguistic features. This is followed by stage two, *controlled practice*, which involves the practice of the language structure and vocabulary of the text in isolation. As seen in the textbook *Keep Writing*, at this stage, students work with the substitution table that is associated with structural linguistics, as Hutchinson and Waters (1987) explain:

In a structural description the grammar of the language is described in terms of syntagmatic structures which carry the fundamental propositions (statement, interrogative, negative, imperative, etc.) and notions (time, number, gender etc.) By varying the words within these structural frameworks, sentences with different meanings can be generated. This method of linguistic analysis led in English language teaching to the development of the substitution table as a typical means of explaining grammatical patterns (p.25).

After that, the students proceed to do some guided writing where they fill in a gapped paragraph similar to the end-product text, and, finally, in the last stage, the students are given new information (new input) that they use to produce a similar text.

In class, it was observed that when the students use the model text to write their end-product, they sometimes end up copying irrelevant information from the model into their final product like irrelevant pronouns. For instance, say the model text is about the life of someone in the third person singular and they have to write a paragraph in the first person, they sometimes reproduce information that should also have been changed, such as the subject or object pronouns. This might be an indication that students imitate the model without sufficient understanding or thinking. This observation can be backed up with Jordan’s (1997) argument about this method:“ [It] resulted in mindless copies of a particular organizational plan or style” (p. 49).

Another indicator that little learning takes place with this method is that students are more likely to get high mark when the exam is 100% the same as in the book; the same topic and paragraph. When the exam is slightly different, students score badly. Such approaches fail to build confidence or autonomy in students, as it cannot develop any

thinking skills. It also does not teach students essential skills in writing, like mind-mapping or planning. Dudley-Evans and St. John (1998) criticize this approach for being “a rather simplistic copying of the model text by merely changing certain words from the original text to produce the new text” and that it is “a purely mechanical task which involved no real thought about the purpose of the writing, the readership or the expectations of the discourse” (p. 116). In the context of the students associated with the present study, they end up learning ready paragraphs for the exam by heart and they forget them once the exam is over. This is reported by the PYHC teachers’ interviews, which are discussed in section 5.10 in this chapter. This situation is associated with the type of information processing the students have to perform while learning, as it will be discussed in the language learning section in Chapter 7.

5.2.2. PYHC ESP Textbooks and Underlying Methodologies

For Level 4, students follow an ESP course. Similar to the general course, they only study grammar, reading, and writing and use an elementary set of textbooks for health professions, *Academic Reading for Health Professions*, *Academic Writing for Health Professions* and *Grammar for Health Professions*, written by Mazyad (2008). The three book-based courses are taught in isolation by two different teachers. As with the other levels, speaking and listening skills are not taught. These textbooks fit, to a certain extent, with the students’ level and are written for Saudi students. The writer, a Saudi himself, typically uses Saudi examples, which are helpful to the students in some ways. However, the question remains whether these textbooks are able to reach the objective of preparing the students to cope with the medical school requirements in terms of language, learning strategies, and content.

The reading textbook aims to teach certain basic reading skills, like skimming and scanning and word meanings from context. However, it uses very simple structure, language, and content. The questions are too straightforward (appendix number 4) and do not challenge the learners or teach them any thinking skills. The topics are more public health oriented than medically oriented; some of these topics are smoking, stress, headaches, accidents, and first aid.

Grammar is presented deductively and taught at the sentence level. No context is given to the learners to help them understand the value of tenses (e.g., in situations) and what tense to pick up and when.

Academic Writing for the Health Professions is used to teach writing skills. The author claimed he was using the genre-based approach. This approach is anchored in the socio-constructivist theory of learning as outlined by Cheng (2013):

As both a cognitive and a cultural concept, genre is often defined as the abstract, goal-oriented, staged, and socially recognized ways of using language delimited by communicative purposes, performed social (inter)actions within rhetorical contexts, and formal properties (structure, style, and content) (p.4).

In the framework of this approach, the students should be given the opportunity after studying one example text to discuss meanings and brainstorm for new ideas to write a new one. Widido (2006), cited in Dudley and Evans (1998), stressed the fact that the students in this approach, in addition to working with a model, have to construct ideas and find information on their own, as well as draft and plan. This should differentiate genre from the product approach.

However, in this textbook, the author provides the learners with the input for the new text just as in the product approach. At the end of each unit, we find this instruction: “You have done some research and found this information. Use it to write a composition about”. Instead of asking the students to brainstorm for ideas, look for information, plan, and draft, which Swales (1990) described as “the process aspect of genre instantiation” (p.16), the students are provided with the information to be used to produce a similar text to the sample composition provided at the beginning of the unit. In between, students also work with the model text and practice structure in isolation, just as in the product approach. The students, therefore, have simply to refer back to a given model, use the given information, and produce a similar text. They are following the product approach rather than the genre approach, as it is claimed in the textbook. Comparing the genre-based approach and the product approach, it is this step of interacting with peers, brainstorming for ideas, and planning that makes a genre-based approach different from a product approach. Genre also involves understanding the discourse and the discourse community. In fact, this is one example of what Swales referred to as genre abuse.

Accusations of formulaic parroting are certainly frequent enough in discussion of genre analyses and its uses and abuses. Widdowson, for instance; observes that ‘The danger of such analysis is that in revealing typical textualizations, it might lead us to suppose that form-function correlations are fixed and can be learnt as a formulae, and so to minimize the importance of the procedural aspect of language use and learning’ (1983:102). There is certainly danger and possibility of abuse. I am dismayed, for instance, when I ask my senior NS undergraduateshow they write their résumés and they reply ‘out of a book’. But there is equally certainly protection too. One way is to stress , as I have tried to do in 1.2, the importance of understanding the rationale of a genre. Another is to emphasize the process aspect of genre instantiation (Swales, 1990, p. 16-17).

5.2.3. Medical School Courses and the Type of ESP Needed for these Courses

The College of Medicine at the University of Hail, which was recently founded (2008), follows the syllabus of King Abdul Aziz Faculty of Medicine, Jeddah, Saudi Arabia, which was founded in 1974. As stated in the course description made by the Quality Assurance Academic Unit in King Abdul Aziz faculty of Medicine (2013-14; appendix number 10), the course includes two phases: Phase 1 covers courses for 2nd and 3rdyear and Phase 2 covers courses from the 4th to 6th year. Phase 1 mainly includes courses about anatomy, physiology, pathology, and pharmacology (i.e., cells, body systems and related diseases, and medication). Phase 2 involves medical ethics, clinical skills, disease diagnoses and treatments, forensic medicine, anesthesia and critical care, medical specialties, such as pediatrics, ophthalmology; family medicine; obstetrics and gynecology.

Phase 1 is oriented more towards Academic Purposes, whereas Phase 2 is oriented towards vocational purposes. The context is different from other contexts in which English is studied throughout each year of medical school enrolment, where the course can be built and constructed in a way that copes with the students’ changing needs as they move from one course to another, and where course specifications change and English needs change (e.g., the French context). In the PYHC in this study, students do not yet have any vocational medical knowledge, and looking at the course content and objectives of the medical school helped identify the immediate needs of the PYHC students (Phase 1), since English at the PYHC is meant to prepare the students to study these courses.

During Phase two, students might start to have new needs in English, but if the PYHC can meet the immediate needs and develop students' learning autonomy, the students might be able to carry on learning English on their own. The medical students in KSA do not study English after the first/ PY, but, rather, study their subjects using English as a medium of instruction (EMI). On the other hand, the PYHC cannot deal with all these needs in a one quarter or one semester, which is the period allocated for an ESP course. This is why it is important to take into consideration students' immediate needs first. The situation in UOH is different from the situation in France, for instance, where English is taught during the different phases of the medical school, and, therefore, different medical learners' needs can be identified as they approach or get into the clinical phase. In the PYHCs, attention should be paid to English for Academic Medical Purposes rather than English for Professional Medical Purposes, as the learners' immediate needs in the first phase of the medical school are academic.

The classification of ESP in the literature seems prominent in the context of this study, and it provides a solid basis to choose the type of English that better suits the learners' needs in the first phase of the medical school and to be targeted in the PYHC.

Dudley-Evans and St John (1998) classified ESP into two major types: English for Academic Purposes (EAP) and English for Occupational Purposes (EOP). English for Academic Medical Purposes (EAMP) is a subbranch of EAP, as indicated in Figure 13 below.



Figure 15. ESP Classification by Professional Area (Dudley-Evans & St. John, 1998, p. 6)

Taking the example of English for Medical Purposes, Dudley-Evans and St John (1998) explained that medical students and doctors have different needs:

Medical students, for example, have to read textbooks and articles, and write essays and short clinical reports. These are EAP needs. Practising doctors have different needs; as well as reading specialist articles; they may prepare papers and slide presentations for conferences and, if working in an English-speaking country interact with patients in English. These are EOP needs (Dudley-Evans and St-John, 1998, p. 49).

The authors explain that this help is better achieved when there is cooperation between the language and subject disciplines. However, it is useful to take this assumption with caution, as the tasks stated in the statement above for medical students is about what is supposed to be done and might be less relevant to other contexts, such as the Middle East, as it was discussed in the section about the macro context.

Similar to Dudley-Evans and St. John (1998), Robinson (1991) differentiates between two major branches of ESP, as Figure 12 shows: English for Occupational Purposes (EOP), “involving work related needs and training” (p. 3), and English for Academic Purposes (EAP), “involving academic studies needs” (p.3).

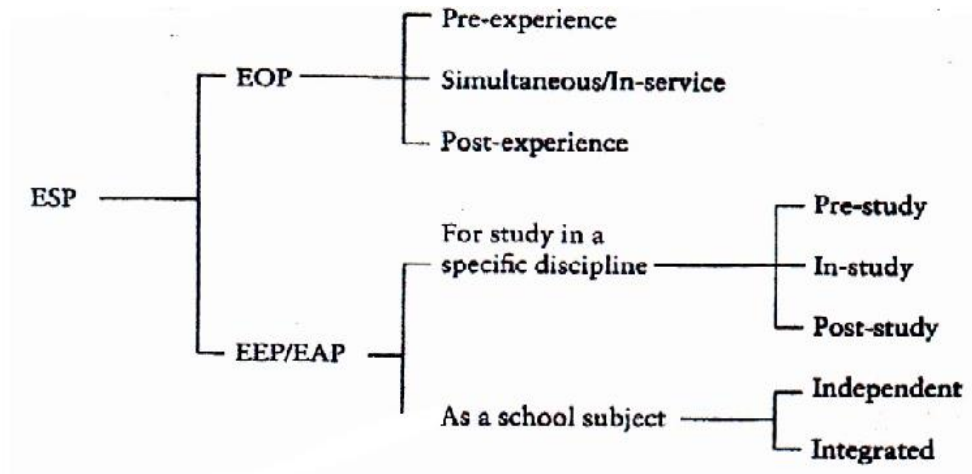


Figure 16. ESP Classification by Experience (Robinson, 1991, p.3)

Robinson (1991) further distinguishes between types of courses in EAP based on their experience in their field of study. She indicates that students at a beginner and advanced level have different needs. According to this classification, the course provided is Level 4, and PYHC can be regarded as a pre-study course in studies for a specific discipline, a sub-branch of English for Academic Purposes (EAP). For Robinson (1991), students in this course are considered to be new to their fields of studies, and, thus, they

should be introduced to the basic concepts and practices of their fields. Based on this assumption, she distinguishes between two types of ESP learners in EAP:

Students who are newcomers to their field may need some instruction in the concepts and practices of that field. Experienced students “require operational ESP materials, where the knowledge, the concepts, the instruction and the training are taken for granted, and where it is the ability to function in English which is being imparted”. Each situation has implications for the kind of content knowledge which the ESP teacher may need to deploy and for the degree of generality or specificity of the ESP course (p. 2).

Similarly, the students at the PYHC have not yet started their medical subjects, in part because they take the EAMP course to be able to study their field subjects in English once they join the medical schools. This classification should help us during material design in this study.

Dudley-Evans and St John (1998) also distinguished between two types of English for Academic Purposes: English for General Academic Purposes (EGAP) and English for Specific Academic Purposes (ESAP): “EGAP refers to the teaching of the skills and language that are common to all disciplines; ESAP refers to the teaching of the features that distinguish one discipline from others” (p. 41). They argued that in EGAP, skills associated with different activities are often isolated to focus on different related sub-skills. On the other hand, as EGAP courses often precede EASP courses, students usually transfer the skills that help them to understand the latter course.

English for Specific Academic Purposes integrates the skills work of EGAP with help for students in their actual subject tasks. It adopts a developmental role (Turner, 1996) by showing how students can transfer the skills they have learnt in the EGAP classes to the understanding of their actual lectures or reading texts, or in writing the essays and reports required of them by the department (p. 41-42).

To summarize, in this section, the program of medicine taught in UOH in the two phases of the medical school has been examined. The first Phase is concerned with academic courses and the second Phase combines academic and clinical skills. The different classifications of ESP and, particularly, the EMP in the literature have also been presented. Although this classification serves this domain in a way that it points out the specific characteristics of EAMP and EOMP, for instance, the medical students especially in a pre-course should focus on concepts and procedures that are relevant to their course (Robinson, 1991). However, much of what EAMP students do in their courses are what doctors do in practice, such as dealing with diseases, diagnosing them,

reading about them to deepen their knowledge, knowing about hospital structures, departments, and equipment and their uses. In the context associated with this study, because the English course is delivered in the very first year of the medical school in the form of a foundation course, it might be too early to teach the students how to interact with patients, which is a skill they will need upon finishing that we consider as long term-needs. Therefore, it appears more important to focus on short-term needs to equip the students with the study skills and learning strategies that will allow them to be life-long independent learners. EAMP should be taught in a way that can enhance the students' language skills, content, and practice skills in their domains. Because English is taught as a pre-study course, as in Robinson's (1991) classification, in the PYHC, it may be argued that the students' immediate needs should be taken as a priority in the course design. Students, therefore, should be given the opportunity to learn the concepts and understand the discourse related to their academic needs in medicine.

5.2.4. Interviews with Teachers at the PYHC

A semi-structured interview (appendix number 6) was conducted with seven teachers who have been teaching Level 3 and 4 in the PYHC for a number of years. Four of them are native speakers of English and three are non-native. They were each asked five questions. The interviews were voice-recorded and then transcribed (appendix number 7).

For data analysis, the computer software Atlas T.I¹¹, which has been designed to analyze qualitative data, was used. This software offers a 30-day-free-trial-version, which we used for the purpose of this study. To learn how to operate this software, a series of tutorials on YouTube were watched, which were very helpful. This software allows many things to be completed, like uploading primary documents, creating themes, and subthemes, which are referred to as codes in the software. It also allows the user to arrange these codes into families of larger themes, to design figures to illustrate the density or groundedness (i.e., the number of associated quotations of each code), and to display the quotations for each code in addition to many other functions. One of the

¹¹ atlasti.com

advantages of this software is the way data is displayed; each quote has two numbers. The first number refers to the number of the interviewee. This fact makes it possible to see and compare the quotes of the same interviewee in different codes through referring to the interviewee's number, which remains the same in all the figures in one analysis.

The five questions in the interview (See table 4, below) were used as major topics to create family codes. Then codes or sub-themes were created using thematic analysis. Lastly, the final data was displayed in figures that show the quotes related to each code in the corresponding family of codes. Codes were also highlighted according to their groundedness or the number of quotes they included. On the one hand, this helped to see the number of quotes that correspond with that code or argument. On the other hand, this allowed the identification of contradictions in some interviewees' points of view, as discussed below. For whatever reason, some interviewees wanted to sound positive, but failed to keep up with what they said before when they had to answer similar questions in the interview, such as questions 1 and 3, as stated below.

In the following table, five family codes or major themes that emerged from the interviewees' answers have been identified. These topics were used as titles of the graphs discussed below.

The interview questions	The major themes/ families of codes
1- To what extent do you think the approaches used in the books we are currently using for the Level 4 ESP course enhance the students' linguistic skills?	1- Teachers'opinions about the used methodologies in the PYHC textbooks
2- How do you think the students are currently learning the language?	2- Passive learning and dependency on rote memorization
3- Do you think the way they are learning now is effective? Why or why not? Please state some examples.	3- Evaluation of students' learning strategies
4- Level 4 students leave the Prep-Year to carry on their studies in their discipline in English, but they do not study English anymore. Do you think the current course prepares them to learn on their own and study other subjects in English in the future? Why or why not?	4- Students' preparedness to study their specialty subjects in English
5- How do you think we can help the students learn better	5- Suggestions for improvements

Table 4; Interview questions and themes

Question 1:

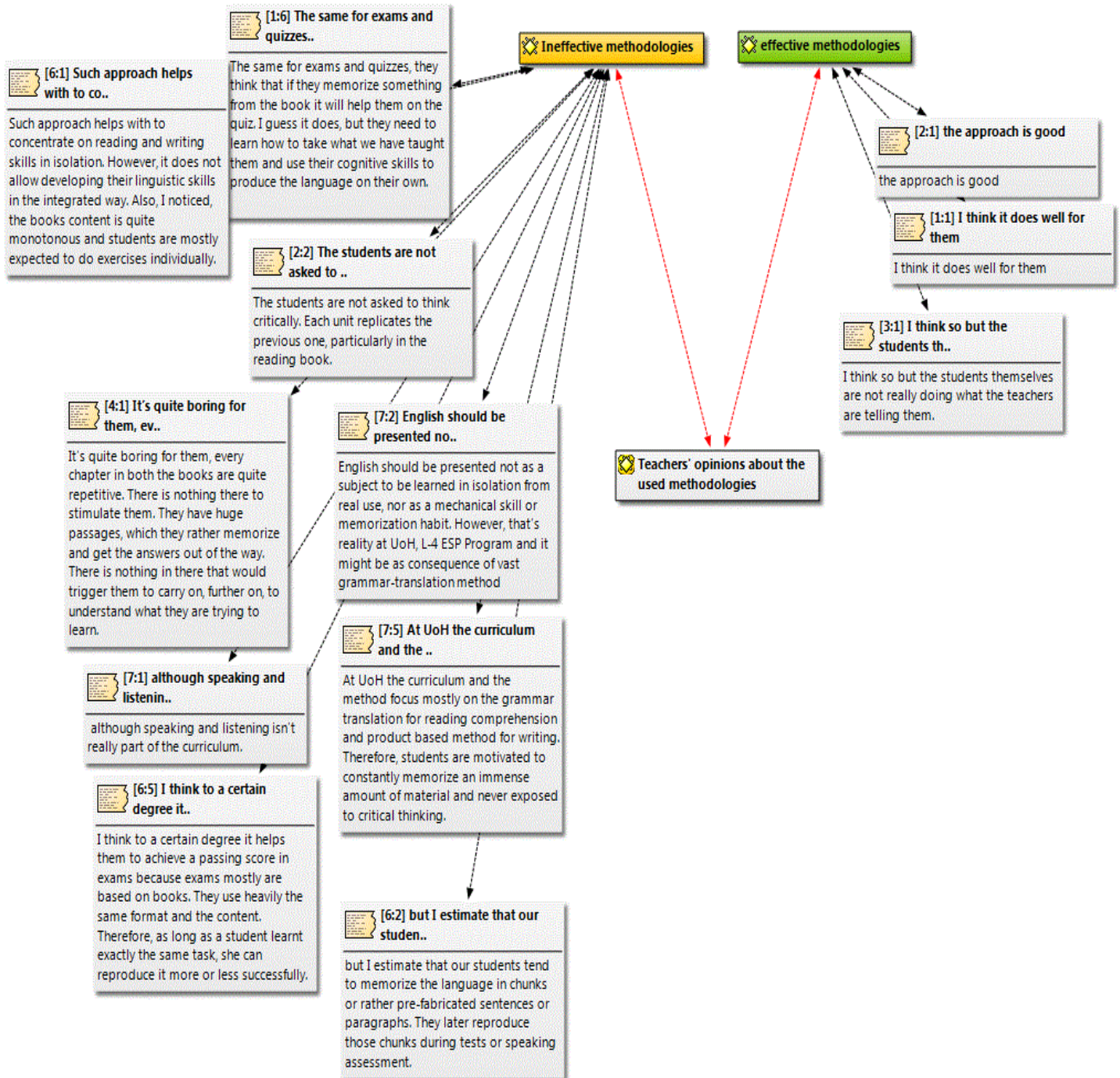


Figure 17. Teachers' opinions about the used methodologies in the PYHC textbooks

For question 1, the teachers were asked about their opinions of the underlying methodologies used in the textbooks to teach the English language at the PYHC, and, particularly, the ESP course in Level 4. Their answers were then classified under two

views/ codes: *effective methodologies* and *ineffective methodologies*, as outlined in figure 17.

In the *effective methodologies* code, three interviewees claimed that the used methodologies are effective. However, examining the first number in the quotes that refer to the interviewees, the same teacher – in quotations [1; 1] and [1; 6] first claimed that ‘*the methodology does well for the students*’ and ‘*the methodology is good*’, but then she criticized the ways the students learn the language. The same goes for the second interviewee, as indicated in codes [2; 1] and [2; 2] in Figure 17. These two interviewees reported that because students memorize to prepare for exams they cannot really use the language on their own. This implicitly indicates that the methodologies do not prepare the students to work on their own, and, therefore, cannot be assessed as effective. Thus, even the teachers who were not that straightforward at the beginning, at another level of the interview, they agreed that the methodologies are not effective and that they are failing the students.

In the code *ineffective methodologies*, Figure 15 indicates that nine quotes support this perspective. These answers show that these methodologies are ‘*repetitive*’, ‘*monotonous*’, and ‘*boring*’. Interviewee number 7, for instance, reported that ‘*At UOH [University of Hail] the curriculum and the method focus mostly on the grammar translation for reading comprehension and product-based method for writing. Therefore, students are motivated to constantly memorize an immense amount of material and never exposed to critical thinking*’. This statement confirms the analysis of the textbook methodologies in the previous section. Although the other interviewees did not openly state that this is the grammar translation or the audio-lingual method, which encourage the repetition and practice of the same items of language again and again, their descriptions still point out the same thing. The participants also argued that these methodologies do not motivate the students or teach them to think critically. In addition, they think that the examination system reflects the same methodologies by asking the students to reproduce what they have learnt in class, and, thus, encourages them to learn the content of their lessons by heart in the textbooks to pass their exams. They also reported that students are unable to use the language on their own due to the teaching and examination methods mirroring each other. This last argument that students are unable to

use the language, think critically, and work on their own is replicated in many codes. It is an important finding and a major guideline for the rest of this study. It also relates to the concept of autonomy, which is defined in Chapter 7 on language learning.

Question 2:

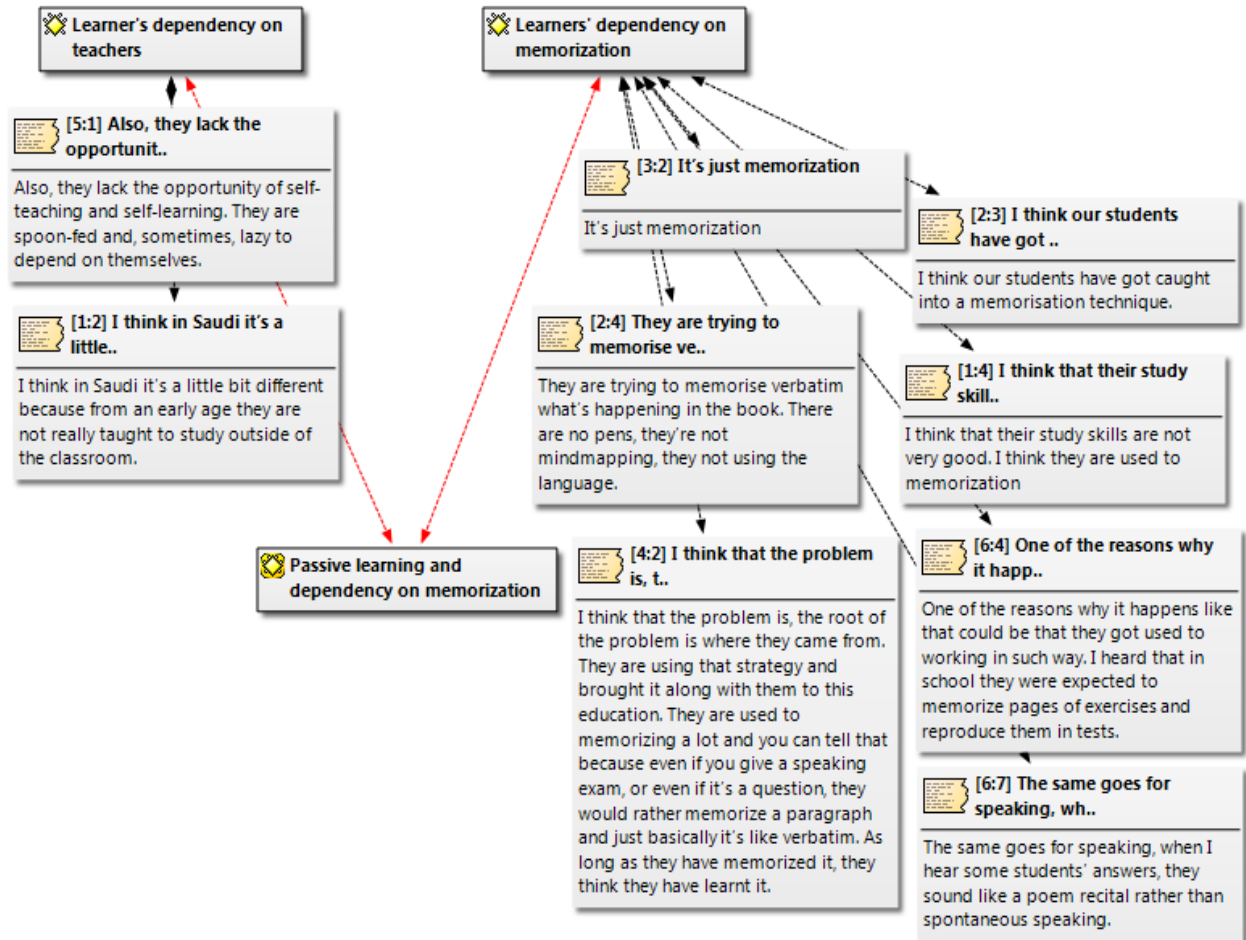


Figure 18; Passive learning and dependency on rote memorization

When asked about how students learn the language, all the interviewees agreed that learners are passive and that they rely on teachers in order to learn. The ability to learn, as it was stated in the CEFRL, can involve “varying degrees and combinations of such aspects of existential competence, declarative knowledge and skills and know-how” (p. 12). Existential competence was defined as the students’ “willingness to take initiatives or even risks in face-to face communication, so as to afford oneself the opportunity to speak, to prompt assistance from the people with whom one is speaking

[...] also listening skills, attention to what is said [...]" (p.12). Skills and know how were explained as the ability to use the library, for instance, the ability to use resources such as a dictionary, the Internet, or other resources for one's learning. Passive learning refers to the inability of the students to function in the target language or use resources that help them to learn.

All the interviewees, without exception, also agreed on the fact that learners typically use rote memorization. They simply memorize the contents of their lectures, sometimes even without understanding the content. They use this temporarily retained information to pass exams and quizzes, which usually come straight from the textbooks in terms of form and content. Students, therefore, do not have to deal with new information and resolve language or content problems. In other words, they are not trained to use the language meaningfully or to use critical thinking. As a result, students are getting more and more passive. They are not given the opportunity to develop effective learning strategies. They are afraid to work with something new and are unable to do so, and, as a result, they cannot develop confidence and cannot become independent language learners despite the number of hours they study. The learning outcome is similar to what Mayer (2002) called 'no learning', as is the case of the learner 'Amy' who memorized some material and shortly after that was unable to recall it or use it; "Amy neither possesses nor is able to use the relevant knowledge. Amy has neither sufficiently attended to nor encoded the material during learning. The resulting outcome can be essentially characterized as no learning" (p. 226).

To summarize the findings for Question 2, in the context associated with the present study, meaningful learning or meaningful processing does not typically occur, but, instead, students used rote learning. The answers to these questions also confirmed the findings in the first analysis involving the advanced documentations and textbooks used in the PYHC. The students come to the PYHC with poor learning strategies and carry on using them at the PYHC, which results in further accumulation of language learning problems.

Question 3:

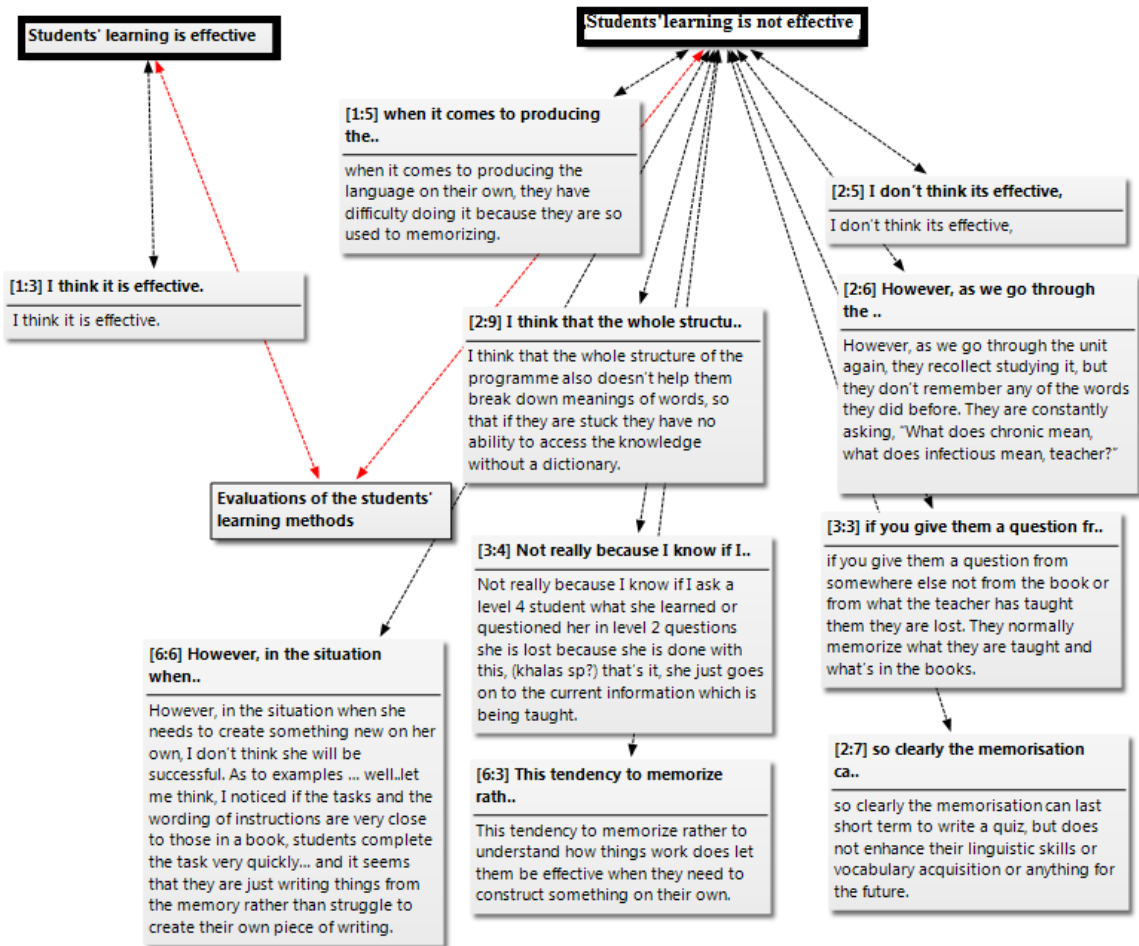


Figure 19; Teachers' evaluation of the students' learning

Figure 19 contains two codes: code 1: *students' learning is effective* and code 2: *students' learning is not effective*. In code 1, only one interviewee claimed that students' learning is effective in quote [1:3], but, again, as quote [1:5] shows, the same person reported, "When it comes to producing the language on their own, they have difficulty because they are so used to memorization". So, even the only quotation that shows that students' learning is effective, it is refuted by the interviewee herself. Again this is interviewee number one and it seems it is her way to react to questions by trying to be positive before going to the point. The second code actually shows that the ways the students are learning the language do not help them in many ways. Students are not taking responsibility for their thinking. Taking responsibility is one of the major factors

of language learning autonomy, but the students do not show any indicators that they are doing so. It was also stated that students are unable to work on their own. They are parroting and not asked to think or trained to be creative. The result is dependency on teachers and rote memorization so that they can pass. Students temporarily retain some information through rote memorization, which they generally lose after exams. The new language knowledge is not effectively coded in their memories, and, therefore, no long-term learning is taking place. This is supported with research on memory and language learning, which is discussed in Chapter 7.

Question 4:

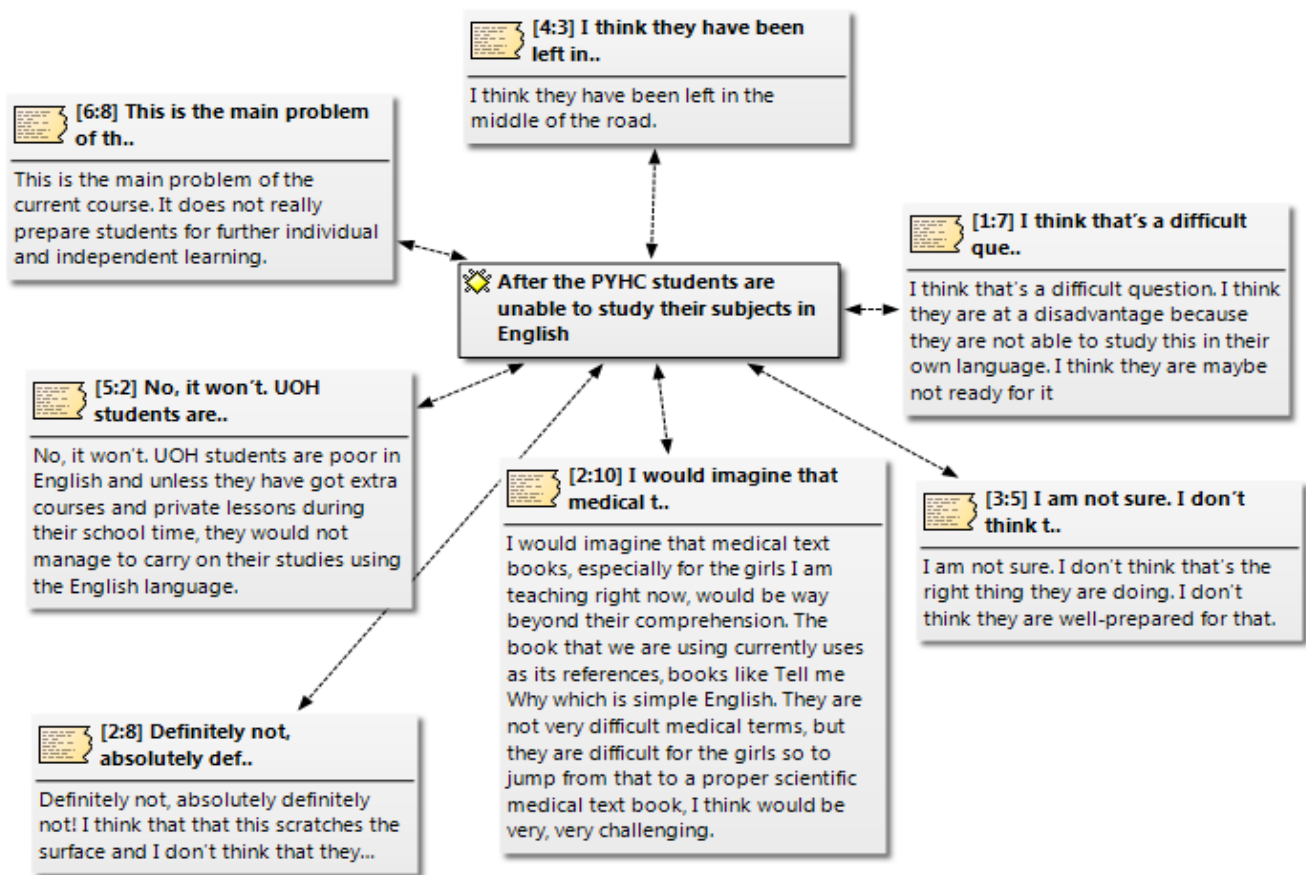


Figure 20; Students' preparedness to study their specialty subjects in English

In this question, the teachers were asked whether they think that the PYHC program efficiently prepares the students to continue their medical studies in English. All

the interviewees, as Figure 18 shows, said that it does not. Some teachers stated that the acquired language is still too little compared to what is awaiting the students and that studying medicine in English will be very challenging for them. Interviewee number 2 referred to the current textbooks as ineffective in terms of content and method and argued that they are not the right thing to study in order to meet the students' future needs. These answers suggest that the program, in its current form, does not meet students' needs.

Question 5:

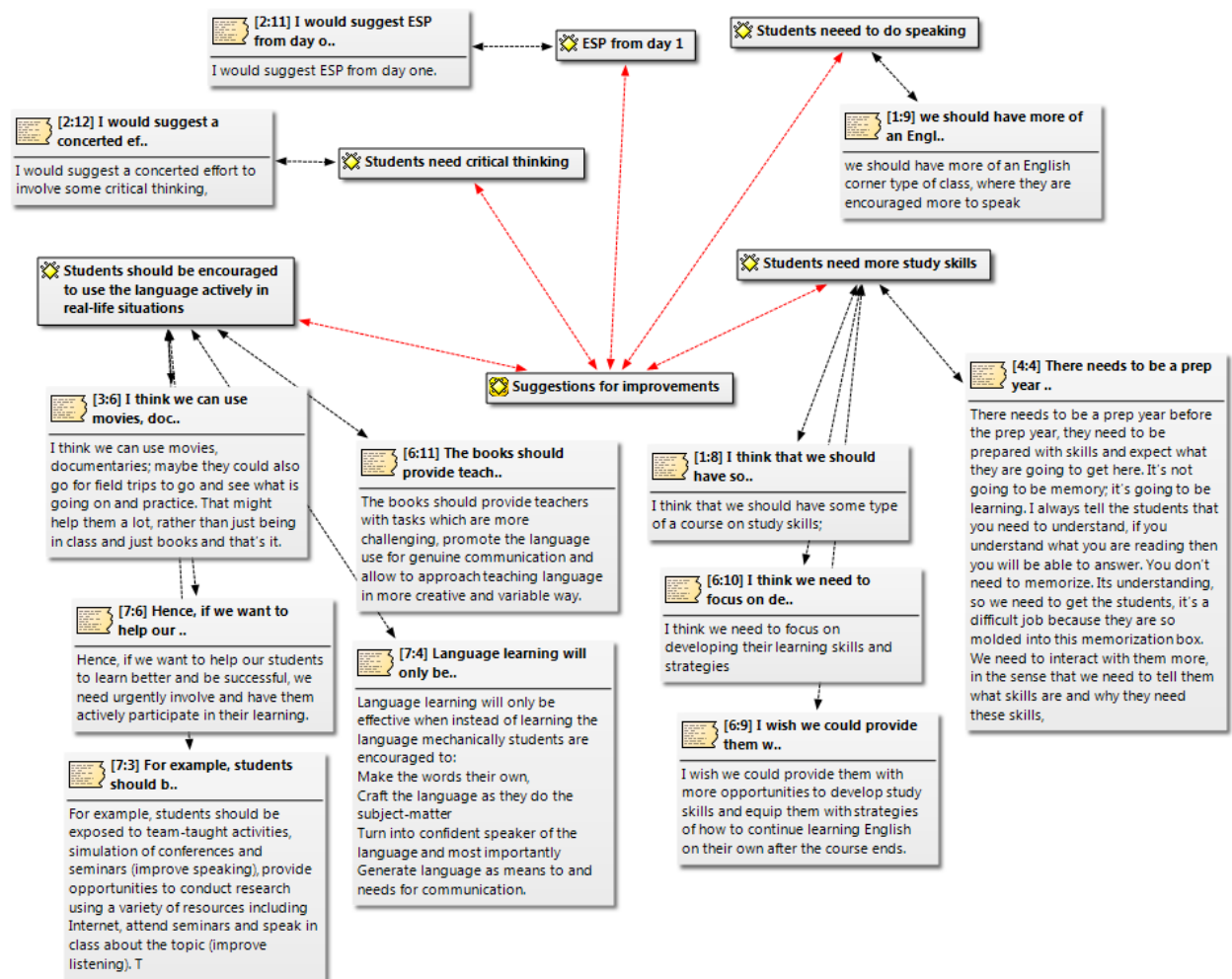


Figure 21; Suggestions for improvement

In this question, the teachers were asked to make suggestions for improvements. In one way, this will identify what is not really done or achieved and support the answers acquired in the previous questions about the teaching methodologies, rote learning, and students' poor learning strategies. These suggestions also represent the students' present

needs or issues associated with learning the language from the teachers' perspectives. The teachers' answers were classified into these codes:

- Code 1: Students should be encouraged to use the language actively in real-life situations;
- Code 2: Students need critical thinking;
- Code 3: Students need to do speaking;
- Code 4: Students need study skills;
- Code 5: ESP is needed from day one.

There was a general consensus among the interviewees that the current course at the PYHC does not develop students' linguistic skills and learning strategies. They argued that mechanical language learning should be replaced with a method that induces language use; students should be involved in real learning and should be encouraged to use the language and learn how to use different sources (e.g., the Internet) to carry out different tasks in genuine situations. They also recommended that students' confidence should be boosted and textbooks should provide the teachers with varied, interactive, and creative tasks rather than monotonous, repetitive activities. They reported that students lack learning strategies and are modeled into rote memorization. As a remedy, the interviewees recommended that students become creative, be encouraged to speak and to think, need to be trained to use learning strategies to help increase their understanding of the language, and to learn how to learn. However, as explained in the macro context in this study, being expatriates there are different reasons why teachers may refrain from criticizing the system. Therefore, to conduct the interviews, interviewees were assured of complete anonymity and confidentiality, as colleagues had participated in the interviews.

In summary, the major topics that emerged from these interviews are:

- Monotony of course materials;
- Failure of the current methodologies to enhance learners' thinking skills and ability to learn;
- Failure of the examination system to encourage students' creativity and autonomy;

- Students' lack of effective learning strategies;
- Students' reliance on rote memorization;
- Memory loss;
- Learners' overreliance on teachers and passive attitudes; and
- Suggestions to implement new methodologies that can help learners develop effective learning strategies and learning autonomy.

Students' lack of language learning autonomy emerged as a major need among the students (the construct of autonomy is discussed in detail in Chapter7) and the arguments throughout the NA that was conducted are based on the understanding of this concept.

In the next section, how the students describe their own learning strategies will be examined as well as whether teachers and students' views replicate each other regarding issues related to language learning autonomy.

5.2.5. Questionnaire with Levels 3 and 4 Students at the PYHC

In the interview above, learners were described as *less effective learners* (Oxford, 2002). The objective of the questionnaire was to find out, from the students' perspective, how language learning was taking place in order to know about students' learning strategies and to find out how effective their learning strategies are. These findings should be compared with the teachers' views of learners' strategies in the interviews above to consolidate and cross-compare the findings.

Oxford (2002) describes some of the *less effective learners'* strategies in the statement below:

Research suggests that less skilled L2 learners sometimes are not even aware of the non-communicative or rather mundane strategies they use, such as translation, rote memorization, and repetition (Nyikos, 1997). However more recent research indicates that many of the less effective learners apply these strategies in a random, even desperate manner, without careful orchestration and without targeting the strategies to the task (Vann and Abraham, 1989). They do not construct a well-ordered L2 system, but instead retain an untidy assemblage of unrelated fragments (Galloway and Labarca, 1991; Stern, 1975) (p. 136).

The questions below were inspired from Oxford's (2002) description of learners' strategies and the discussion about learners' strategies in Chapter 8. They were designed to reveal the types of learners' strategies the students might possess.

Permission was obtained from the female deanship of the PYHC and the questionnaire was given to students in one Level 3 section (28 students out of 125, the total number in this level) and another section in Level 4 (29 students out of 183, the total number in this level) in the classrooms of two bilingual colleagues who facilitated the process by explaining some questions to the students when necessary. The only reason behind this choice was that the teachers speak Arabic and they were willing to help administer the questionnaires and explain the questions to the students. This can be considered as a kind of random sampling. In this type of sampling, each "element in the population has an equal chance of selection in the sample" (Kumar, 2005; p. 169). Level 3 and 4 students already finished Level 1 and 2 and had worked at least with 4 or 6 different teachers before this level, and their answers might vary as a result.

The teachers assigned the questionnaire in the last 15 minutes of the lesson and collected it before the end of the lecture. The total number of respondents was 57 students or 100% of the participants. However, the students were offered the choice of voluntariness of participation, ensuring they would respond properly and not just fill in the papers. In other words, the students were given the choice to fill or not to fill the questionnaire. In doing so, the reliability of the data would be increased.

Question 1:



Figure 22; Students' strategies to understand new words

The first question targeted the students' vocabulary learning strategies, they use outside the classroom (on their own, without the presence of the teacher). The purpose was to know how this happens, to what extent the students depend on their mother tongue, and whether they show any autonomy in learning. From the answers, it may be concluded that students are very attached to translation (almost half of them appear to do so). However, a good number of respondents, 35%, would ask someone else for the word meaning, which can be taken as evidence of a lack of learning strategies to identify a word meaning on one's own. Ellis (2009) describes autonomous learners as "those who can use strategies independently and effectively to enhance their learning" (p. 137). Only 16 % (answers 1 and 2) showed some skills, like using a dictionary or generating context, which shows they might be able to, at some level, function independently in the target language.

Question2:

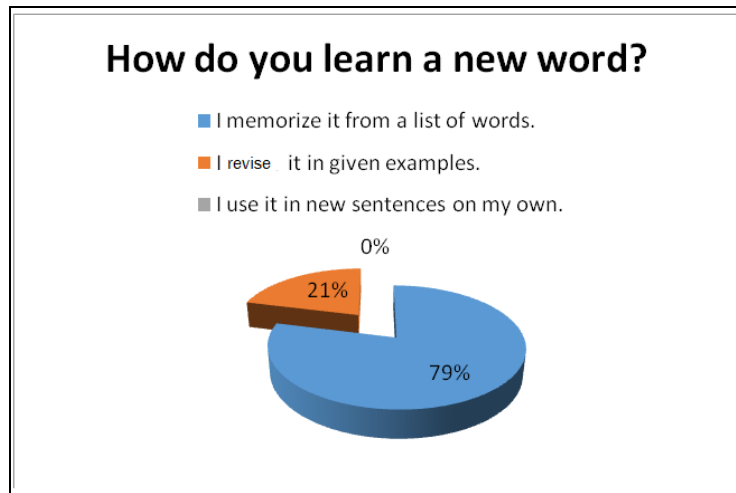


Figure 23; Students' strategies in vocabulary learning

The second question sought to determine how students learn a new word. In the first two options, it was important to identify whether they revise it in its context or memorize it in isolation. In the third option, whether the students work with the words they have to learn on their own, such as using them in new sentences, was ascertained. In this way students, would deeply process the word meaning and this would result in appropriate memory storage. This option also shows whether students try to be creative and work with the language on their own. The answer, as Figure 21 shows, is 'no' since none of them chose this option. Approximately 21% would memorize the word in the given context from the textbooks. The result also shows a strong tendency for rote memorization, as 79% of the respondents would just learn the words in lists in isolated forms. These lists are often available in the textbooks or sometimes teachers prepare them as part of revision for the exams. However, research has shown that words are better retained when they are associated with others in sets of meanings, such as in mnemonics, the peg method, the keyword method, and loci (Thompson, 1987), which will be discussed in Chapter 7 under language learning.

In comprehension deducting the meaning of vocabulary from the context and from the structure of the actual word is the most important method of learning new vocabulary. For production purposes, storage and retrieval are significant. Various techniques have been suggested for storing vocabulary: the use of word association, mnemonic devices and loci, that is the use of visual images to help remember a word (Nattinger, 1988) suggests that the use of word meaning is the key to successful retrieval and that

meanings can be presented in the form of semantic, situational and metaphor sets (p.84).

When students memorize words in isolation, they are unable to use them properly or to remember them after a while because these words have not been stored effectively. This, to a certain extent justifies, why students often complain that they study and forget information. Students, therefore, appear to lack the skills to learn properly.

Question 3:

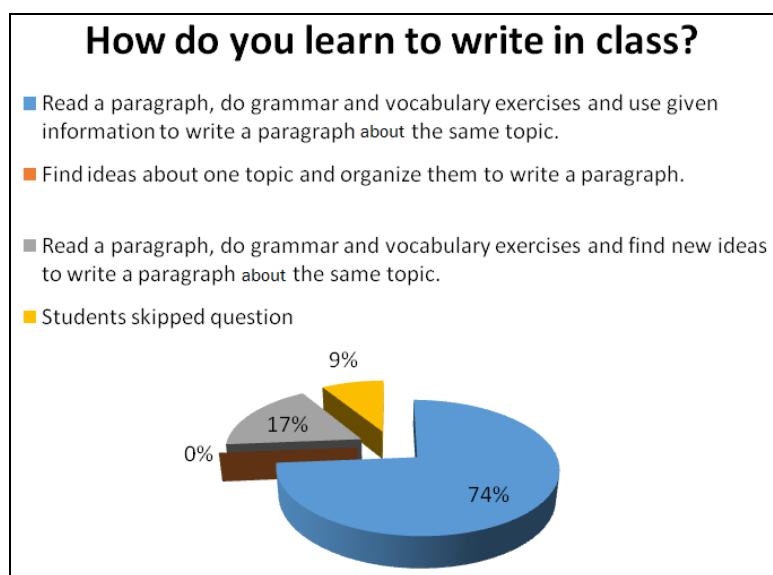


Figure 24; Writing approaches and learners' strategies in writing

This question targets writing approaches used in learning writing skills in the classroom. The first option portrays the steps found in the product approach, which were explained and discussed in Sections 1 and 2 in the needs analysis. As Figure 22 shows, 74% of the students said that they were using this approach. This is not surprising, as this is the approach used within the textbooks.

The second option reflects the process approach. Godstein and Carr (1996) argue that Process Writing refers to a broad range of strategies that include pre-writing activities, such as defining an audience, using a variety of resources, planning the writing, as well as drafting and revising. This approach developed as a reaction to the product approach (Jordan, 1997) and adheres to the constructivist learning approaches. None of the respondents reported that they were using this approach. This approach is not part of teaching materials and it is not typically used in the teaching context associated with this study. The third alternative in this question is associated with the genre-based approach,

which, according to Dudley-Evans and John (1998), is a combination of the two previously cited methods: “The genre-based approach combines the strengths of the product and process approach” (p.123). Thirty-percent of the respondents said they were using this approach, which might reflect some teachers’ efforts to implement some brainstorming for new ideas before they write the final product.

Question 4:

How do you prepare for your grammar exam?

- I memorize ready sentences containing the grammar rules
- I memorize grammar rules only
- I practice doing exercises on my own
- I make new sentences using the grammar rules.

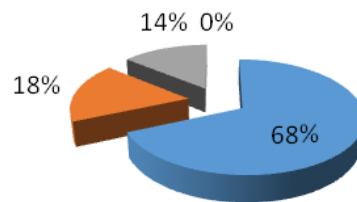


Figure 25; Students’ strategies to prepare for grammar in exams

Question 4 examined what learning strategies students use while preparing for the grammar exams. The first option, which was chosen by 68% of the respondents, indicates that students tend to memorize exactly the same sentences as in the textbook. Students usually have very similar examples in exams and this strategy helps them to get a pass mark. Approximately 18% of the students showed more responsibility. If they learn the rule and try to apply it in the exam, this indicates some understanding of what they are doing. The other 14% reported practicing doing some exercises, which might show more dependency on themselves. The last option sought to determine whether the students would go a step further by making new sentences on their own, and the responses showed that none of them would do so.

Question 5:

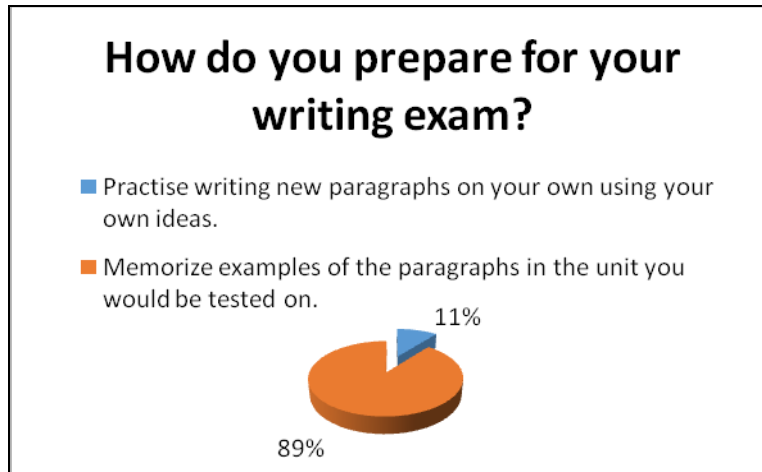


Figure 26: Students' strategies to prepare for writing in exams

The question in Figure 26 was meant to inform this research on how the students get ready for a writing exam. As the figure shows, 89%, the majority of the respondents, memorize a ready-made paragraph that they simply reproduce for the exam. Actually, the system encourages them to do so, as paragraphs for the composition part in the PYHC exams come straight from the textbooks and are often paragraphs that students and teachers wrote together and rehearsed in class using the product approach.

Question 6:

This question targets students' attitudes towards exams and their expectations, which might explain their answers in the previous questions and their use of certain strategies to prepare for these exams. The question is made up of two parts: a yes/no question and a request to justify the chosen answer in an open-ended way.

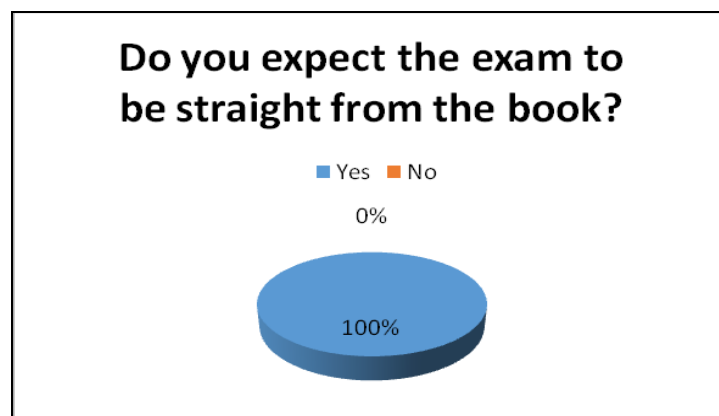


Figure 27: Students' expectations in exams

For the yes/no question, all the students agreed that they expect the exam to be straight from the textbooks. This reflects a widespread student mentality about exams and how students manage to pass. For students, what is most important is the marks they obtain. Students are not used to working with new topics or encouraged to be creative. They find difficulty when simple issues are presented that might be different from what they memorized. This is partly because of the way they are taught. This perspective will be developed further by examining the next questions.

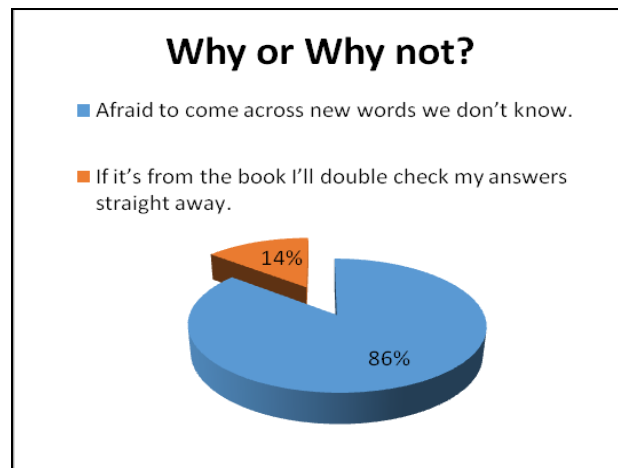


Figure 28; Students' explanations for their expectations in exams

The open-ended part of this question was a follow up to the yes/no question. If they responded 'yes' to the preceding question, students were asked why or why not they wanted the exam to be straight from the textbooks. The answers were coded into two major themes, as classified in Figure 28. The majority of the students, 86%, expressed a lack of confidence in their abilities to handle new content with new words or new information. For the other students, they reported that it is easier to check their answers after the exams when the exam questions are the same as in the textbook.

To conclude, the answers to these questions confirm the teachers' claims in the interviews. The students are modeled to engage in rote memorization. The responses indicate a problem associated with learning attitudes, poor learning strategies, and passive learning. There are no indicators of any autonomous language learning. In contrast, students showed a high dependency on teachers, rote memorization, and

translation. This is an accumulation of learning problems and passive attitudes that the students might have had before the PYHC's, which appear to have persisted among the students. These problems have not been addressed because students only work in class and are taught using outdated methodologies. They do not work on their own and are not asked or encouraged to work creatively.

In the next section, we will discuss the results of the questionnaire we conducted with the second year medical students, in other words, the students who left the PYHC and joined the medical school to find out how they are coping with their studies in the target situation (TS).

5.2.6. Questionnaire with the Second Year Medical Students

Following a strategy approach, Jordan (1997) and Long (2005) recommended conducting a needs analysis while students are engaged in a task in the target situation. For this purpose, a questionnaire (appendix number 9) was given to the second year medical students. The purpose of this questionnaire was to learn about the difficulties the learners face once they engaged in tasks and studying their field subjects in the English language rather than to collect data about the language needed to carry out their tasks. A 5-point- Likert- scale questionnaire with 6 closed-ended questions and 2 open-ended questions was used. The open-ended questions were included to provide the learners an opportunity to give their own ideas. Before the questionnaire was compiled, former students were approached and discussions held with them to get more insight into the types of questions that could be more useful to ask. The questionnaire was administered in November 2013 to the ESP learners who had just finished Level 4 in English and started their second year in the medical school (the PY is counted as the first year). The total number of students in the medical school was 150 across 4 different levels: the 2nd year: 55 students; the 3rd year: 37; the 4th year: 28; and the 5th year: 30. As the Faculty of Medicine started in 2008, there were no student levels above year 5.

The choice of the population to answer the questionnaire was based on selected criteria. Students who had studied the upper levels might have developed other skills

from their subject courses. A few older students enroll in language courses in other countries with their families in summer schools, once they realize how much they need the language. To limit the interference of other variables that might have affect the data in this study, the study was limited to the students who had just finished the PYHC but had at least started functioning in the target situation, and, therefore, had an idea about the needs of the situation.

A document was sent to the female Vice-Dean for consent, but when challenges were presented with this route, an appointment was made with the Vice-Dean to find out that the first request had not reached her. With the consent of the Vice-Dean, the questionnaires were given to the teachers in the medical school to distribute the questionnaires to the students while they were in class and collected them on the same day. Out of 55 questionnaires, 49 completed questionnaires were obtained. To make sure the students understood all the questions, each section was explained to the students and the principal investigator was present to provide support and answer questions. Below is the discussion of the students' responses.

Question 1:

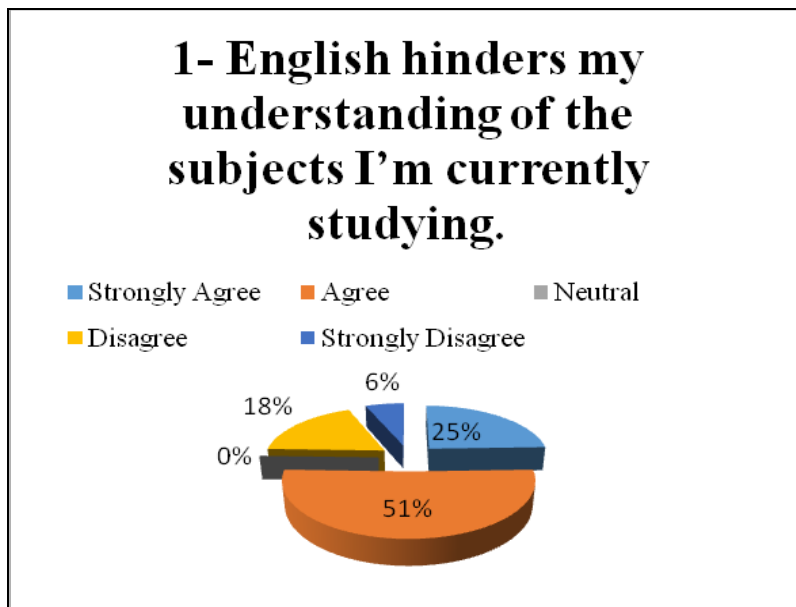


Figure 29; Students' proficiency in English and its impact on their subjects understanding

The purpose of this question was to find out whether the level of English proficiency that the students achieve at the PYHC allows them to carry on their studies in the medical school in the English language. Overall, 76% of the students reported that they experience problems in comprehending the content of the course delivered to them in English. This suggests that they do not have the required level of proficiency to cope with their subject discipline in English and the required skills and strategies to do so.

Question 2:

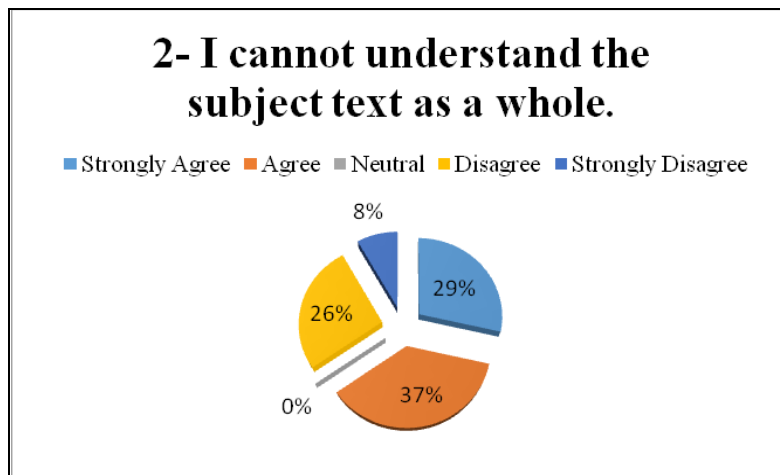


Figure 30; Discourse and medical students' comprehension of their subjects

According to Figure 30, 66% of the respondents associated the problems of comprehension with the general understanding of the text in the subject, which shows that they cannot deal with the scientific discourse of the subject materials in their studies. Students at the PYHC study very simple short texts about general health topics that have little to do with the content or level of language in the medical books (appendix number 5). Even though Level 4 is called pre-intermediate, the book that is used for grammar, writing, and reading is an elementary one. The students at the medical school use textbooks like *Campbell Biology*, Pearson's International Editions. A gap between the levels and type of the two materials is quite noticeable, which might put some responsibility of the PYHC administrators to take this into consideration while deciding on the future direction of the course.

Question 3:

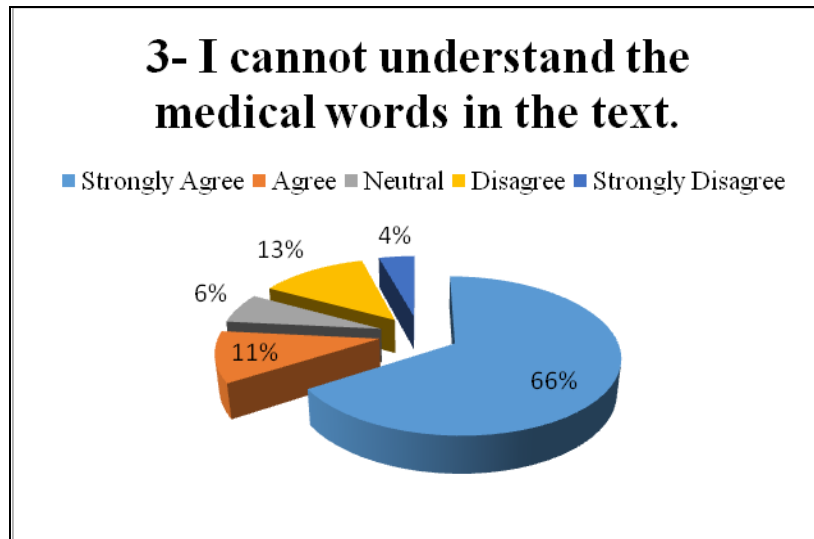


Figure 31; Technical Vocabulary and medical students' comprehension of their subjects

Compared to the previous question, an even greater number of respondents reported that technical vocabulary poses a problem to their subject understanding. While it is partially the role of the current subject teachers to help the students with this aspect of language, it is essential that the PYHC program includes an introduction to medical terminology and teach the students the skills how to learn it. The students clearly do not possess appropriate strategies to understand and learn the vocabulary they need. Medical vocabulary, as seen in Chabner's (2011) textbook, *Medical Terminology: a Short Course*, is based on the teaching of how medical vocabulary can be constructed or deconstructed using roots, suffixes, and combining vowels in meaningful context to the learners. If the students know the meaning of the roots and affixes and how to work with them, they can deconstruct the word parts and understand hundreds of new words without resorting to the tedious memorization of long lists. However, students have never been trained to do so, either in the PYHC or in the medical school, as the next question shows.

Question 4:

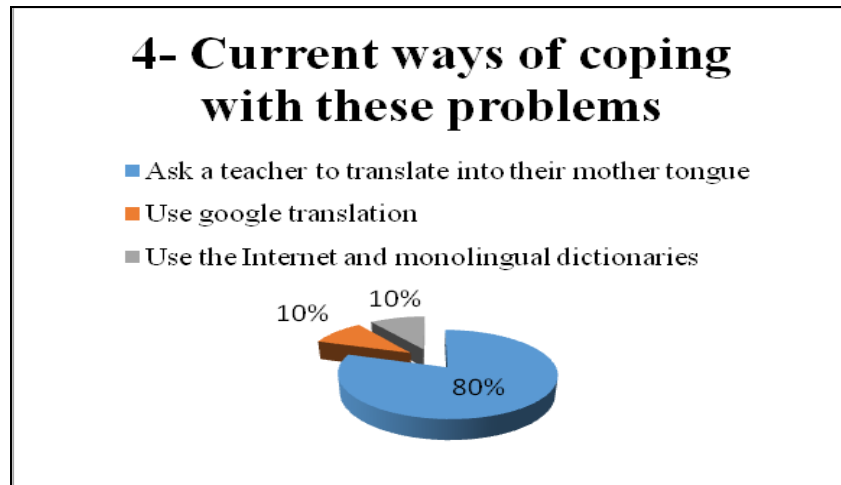


Figure 32; Students' strategies to cope with problems of comprehension

Figure 32 presents the responses to the open-ended question in which students were asked to mention the ways they use to cope with the problems of comprehension of technical vocabulary and discourse. The answers were classified into three themes. The first answer reveals how students depend on bilingual teachers to translate their lectures into Arabic. Overall, 80% of the respondents resorted to bilingual teachers to translate for them (and would pay for it). Another 10% of the respondents would use Google translation and still depend on their mother tongue to understand their subject materials. Students might end up resorting to this solution due to their low English proficiency level and their lack of strategies to comprehend the subject material on their own. If the PYHC program corresponded better with what they have to study in the medical school in terms of discourse, content, and technical vocabulary, it would have been easier for the students to cope with their subject materials and find other ways, rather than translation, to understand them. In this perspective, there should be communication across the departments of the PYHC's and the medical schools. As it will be discussed in Chapter 7, Vygotsky's zone of proximal development or Krashen+1 hypothesis can explain this situation. If the gap between the materials taught in English and students' level of proficiency is large, students cannot cope with the new input.

This question is associated with the previous question that teachers were asked about the students' readiness to join the medical school in terms of English language

proficiency. Similar to the interview, 10% of the respondents are managing to cope with their subject materials. Again, this is another indication that the students are not well prepared in terms of language proficiency to study medicine in English.

Question 5:

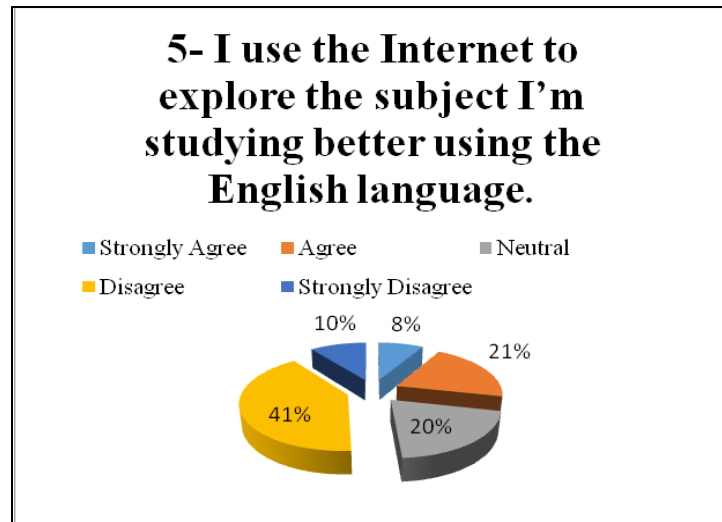


Figure 33; Students' use of the English language outside the classroom

Although 20% of the students neither agreed nor disagreed as to whether they use the English language to find information on the Internet, more than 50% admitted that they would not use the English language to do so. This shows that the students do not use English on their own for extra studies. The reason for this might be that the students neither have the language proficiency nor the strategies to look for information and understand it in English. Although the number of respondents who said that they use English is quite high compared to previous answers, it does not mean that the students would read their findings in English; after the search is done in Arabic, students can also run the text into Google Translate.

Question 6:

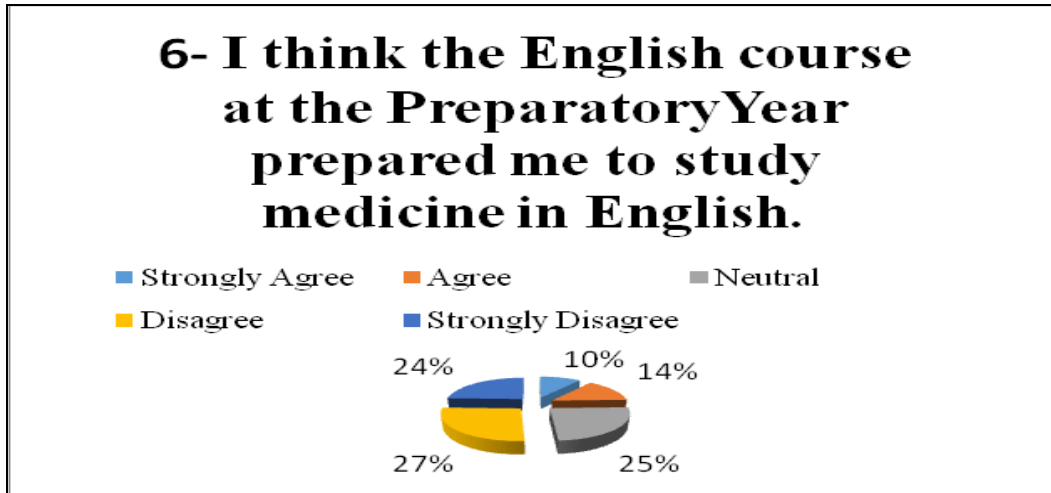


Figure 34; Students' satisfaction with the PYHC program in English

According to Figure 34, 51 % of the students stated that the course at the PYHC did not prepare them. However, only 24 % claimed that the course in the PYHC prepared them to study their subjects in English, which shows greater satisfaction as compared to the teachers' expectations in the interview. Examining the number of students who resort to translating, for instance, their subject materials into English in question 4, there are some discrepancies. That is, 75% would resort to teachers to translate their subject materials into Arabic, whereas approximately 25% chose neutral.

Question 7:

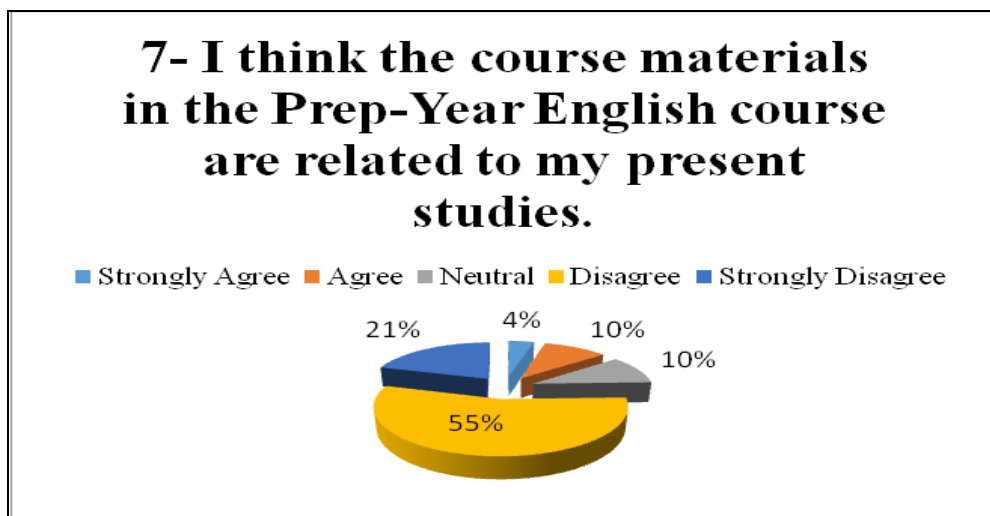


Figure 35; Students' opinions about the relevance of the PYHC program to their current courses

The argument in the previous question about students' satisfaction with the course materials can be confirmed by the answers to the question presented in Figure 35. Only 14% of the respondents agreed that the course materials they studied in the PYHC are related to what they are studying in the medical school, and 24% had indicated they were satisfied with the course. The question that arises here is in what way they think the course prepared them, as 80% indicate they resort to translation with the help of teachers and another 10% that use Google translation. Despite these small discrepancies in the students' answers, 76% of the respondents disagreed that the course materials are relevant to their current studies and 10% chose neutral. These answers replicate, to a large extent, the findings obtained in the interviews conducted with the teachers.

Question 8:

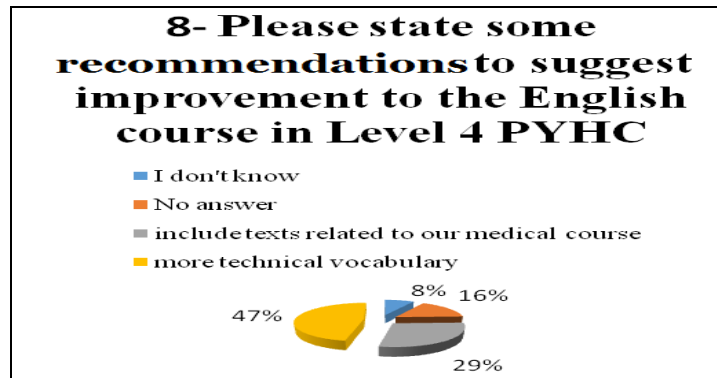


Figure 36; Students' recommendations for improvement of the PYHC English program

Figure 36 presents an open-ended question in which the students were given the option to write their opinions in their mother tongue; Colpaert (2010) argues that students better express themselves in their mother tongue when they are talking about their personal goals. The answers were classified under four themes, as Figure 36 indicates. Though 24% of the students either left this field blank or said they don't know, 47% stated that they think more medical vocabulary should be taught, and 29% suggested texts should be oriented more to the subjects they study. These answers indicate that a great number of students think that the PYHC course does not respond to their current needs at the medical school to study their subjects in English.

Responses to this questionnaire reveal that the current system and course at the PYHC do not entirely meet the students' needs in the target situation and is not helping

them to develop knowledge of medical vocabulary, understand discourse, and develop learning strategies. These findings replicate the findings in the present situation analysis.

One of the findings in the PYHC questionnaire is that students resort to translation to cope with the content of their subject courses (appendix number10). This becomes a current practice in the medical school. Although translation can be a useful technique in the process of L2 learning, Károly (2011) presented different arguments in favor of translation, as indicated below:

More and more researchers argue that translation is not only an invaluable skill in itself, but an aid to language learning (Cook, 2010; Malmkjær 1998; Vermes, 2010; Witte et al., 2009). According to Leonardi (2010), translation enhances critical reading skills, improves grammatical awareness and language proficiency, facilitates vocabulary acquisition, and develops intercultural competence (p. 62).

Bertin et al. (2010) suggested that translation may have several benefits: “Translation into LI can even be seen as an efficient means of saving working memory space” (p.94). They reported a study conducted by Kem (1994), which showed that when the learner goes through the process of translation, s/he reports a better understanding of the meaning of a word and retention of larger parts of texts.

In the context of the PYHCs, students would buy a translated lecture from a bookstore and end up having two versions to read in L1 and L2. They might also simply run the text into the machine for translation and end up having a new text in L1, often having mistakes in terms of structure, and, many times, vocabulary. The assumption is that this procedure is completely different and research results achieved in favor of translation are less likely to be applicable in the context of this study.

Other researchers, such as Gethin and Gunnemark (1996), warned against the danger of embracing translation as a habit; the danger is not in using translation as a ‘practical instrument’, but in translation becoming a mentality. This appears to be the case with the medical students taking part in this study. Gethin and Gunnemark (1996) argued that “What is terribly dangerous, though, is the translation ‘mentality’, the approach to foreign languages that cannot see them or learn them as anything but translations of the mother tongue” (p.21). They gave several reasons why a language learner should not always resort to translation while dealing with a foreign language. First, because languages work differently and there are difficulties associated with

translation. For example: “the same word in one language may have to be translated into another language by different words in different contexts” (p. 21). As a result if the learner always resorts to translation, they cannot understand how the target language works and cannot use it naturally. Gethin and Gunnemark further explained that “translation acts as a barrier to understanding speech” (p. 23), as translating and understanding at the same time require a tremendous effort and usually are not possible together. Oxford (2002) also associated translation with less effective language learning.

5.2.7. Summary of the Results of the Needs Analysis at the PYHC

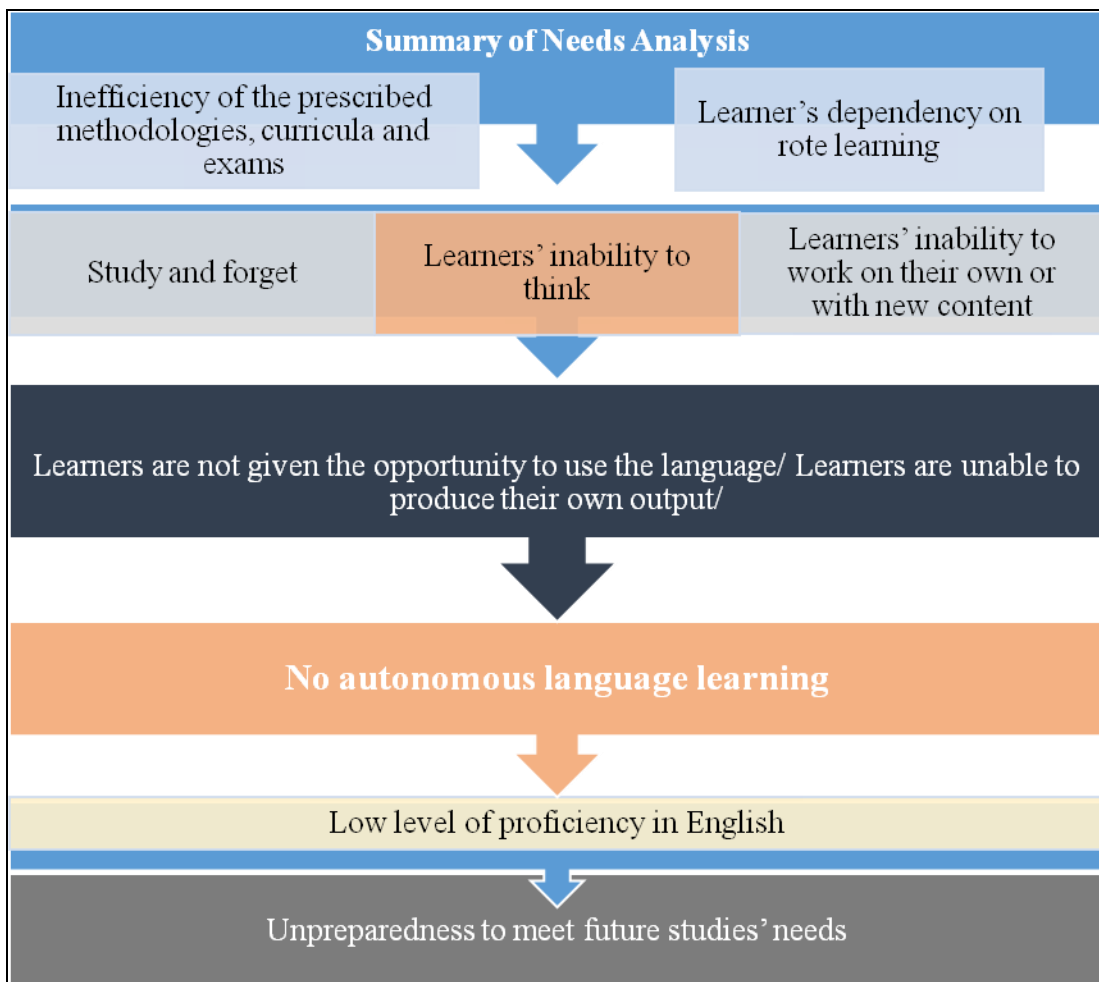


Figure 37: Summary of Needs Analysis in the PS and TS at the PYHC

If we look at all the variables together we can conclude that the students are merely passive learners of the English language and that they highly depend on rote learning to pass. These students have no self confidence and cannot autonomously use the language and that is why they resort to translation whether at the PYHC or at the Medical Faculty. The problems they encounter in the medical school and the lack of proper learning strategies they prove can be counted as some of the drawbacks of the audio-lingual methods which underlie the textbooks used for English teaching in the PYHC. The choice of these textbooks is dictated by the teaching institution and can be counted as one of the constraints at the meso level. The teachers are also from different disciplines and many have no language teaching qualifications. The learners' attitude towards language teaching is another learning constraint. We can see here the multiplicity of factors interacting together which led to low level of proficiency in the English language where one impacts the other. This justifies our choice of Systemics as an approach to complexity.

In the next chapters of Part I, we will tackle the research concepts which should contribute to the understanding of our research question namely language, L2 learning and production. Demaizière and Narcy-Combes J.P. (2007; 7) stated that in language didactics, the researcher has to clearly state his epistemological stance regarding the concept of language, language production and language learning¹².

In the following part, we will discuss our view of language and its implications for language learning or development. The concept of language and language learning we maintain should support our hypothesis that PBL can be an alternative methodology in the teaching of EAMP.

¹² *“En didactique des ‘langues’, toute recherche devrait reposer sur un positionnement explicite des chercheurs sur leurs conceptions de la ‘langue’, de la production langagière et de l’apprentissage/enseignement” (p.7).*

Chapter 6: Language

In his book, *The Language Instinct*, Pinker (1994) presented language as a universal human behavior. He explained that people know how to talk like spiders know how to spin their webs. He also argued that language develops naturally and it is deployed spontaneously despite its complexity.

[Language] is a distinct piece of the biological makeup of our brain. Language is a complex, specialized skill, which develops in the child spontaneously, without conscious effort or formal instruction, is deployed without awareness of its underlying logic, is qualitatively the same in every individual, and is distinct from more general abilities to process information or behave intelligently. For these reasons some cognitive scientists have described language as a psychological faculty, a mental organ, a neural system, and a computational module. But I prefer the admittedly quaint term “instinct” (p.18).

He also suggested that language is rule-governed and an agent’s behavior is varied and different from others’ behavior: “people can understand and speak an infinite number of novel sentences, it makes no sense to try to characterize their ‘behavior’ directly- no two people’s behavior is the same, and a person’s potential behavior cannot even be listed” (p.408). This claim is important in this study, as it argues against the concept of language as a behavior that can be systematically described and imitated so that people learn a new language. This is the case with behaviorism, which is followed by the institution included in the present study.

Pinker (1994) further suggested that language cannot take place without a human innate mechanism and without input from the environment, as can be seen in the model outlined in Figure 38 below.

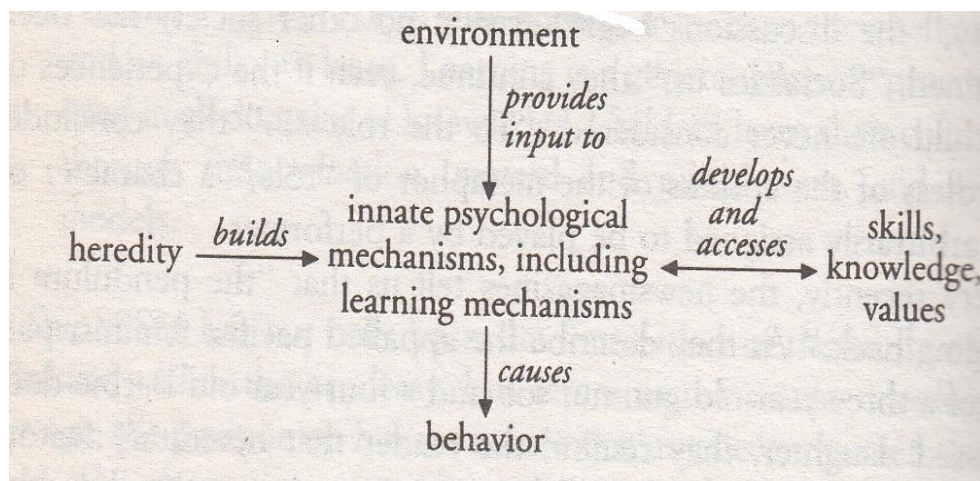


Figure 38: Pinker’s (1994) model for language development (Pinker, 1994, p. 408)

In this model, language is presented as the result of several interactions: the interaction of our innate mechanisms, cognitive/ psychological and learning mechanisms with input from the environment, knowledge, and values. The model highlights one of the most important roles of language, which is knowledge acquisition and skills development through the individual's social interaction. It also shows the cognitive factors that play a seminal role in language development. This argument regarding language learning will be retained in this study and will be discussed thoroughly in the next Chapter.

Eventually, language emerges as a complex factor. To tackle this complexity and account for language meaning, it will be examined from the following perspectives:

- Language as a complex emergent system and a social construct;
- Language and communication;
- Language and context;
- Language and register;
- Language and discourse;
- Language and content; and
- Competence versus performance/ production.

6.1. Language as a Complex Emergent System and a Social Construct

Freeman (1997), a proponent of Complexity Theories and Dynamic Systems Theory (DST), recommended that language be regarded as any other complex dynamic system in the universe and studied as such. Language is complex, as Freeman (1997) explained, because of the variety of components or subsystems it includes, namely phonology, morphology, lexicon, syntax, semantics, and pragmatics. The second reason for complexity is the dynamic characteristics of these components, their continuous interactions and impacts on one another, as well as evolution. Freeman explained her view of language complexity in the excerpt that we cite below.

As is true of other dynamic nonlinear systems, language is also complex. It satisfies both criteria of complexity first, it is composed of many different subsystems phonology, morphology, lexicon, syntax, semantics, and pragmatics. Second, the

subsystems are interdependent. A change in any one of them can result in a change in the others (Larsen-Freeman 1989, 1991b, 1994). In other words, the behavior of the whole emerges out of the interaction of the subsystems. Thus, describing each subsystem tells us about the subsystem; it does not do justice to the whole of language (Freeman, 1997, p. 149).

In accordance with this argument, Ellis N.C. and Larson-Freeman (2006) stated that “our interests in language can better be furthered when it is conceived of as the emergent properties of a multi-agent, complex, dynamic, adaptive system” (p. 557). DeBot et al. (2007) explained how language is seen in DST:

Language can be seen as a dynamic system, i.e. a set of variables that interact over time, and that language development can be seen as a dynamic process. Language development shows some of the core characteristics of dynamic systems: sensitive dependence on initial conditions, complete interconnectedness of subsystems, the emergence of attractor states in development over time and variation both in and among individuals (p. 7).

DST researchers, such as Shaker and King (2002, cited in DeBot *et al.*, 2007) also pointed out that what matters is not language as an innate faculty, universal grammar (UG) but how language is used and developed in a real world through social interactions:

We are not concerned here with what might or might not have gone on ‘inside Kanzi’s head’ that enabled him to develop language skills, nor is language viewed as a combinatorial system whose ‘structure’ he had to ‘grasp’. Rather language is viewed as a particular type of reflexive activity in which Kanzi was enculturated (Shanker and King, 2002, p. 619 in DeBot et al., 2007, p. 12).

The second issue that these theories address is the role of the agent’s interaction with his/her environment in language development. Emergentism values the role of social interaction over language innateness, as DeBot *et al.* (2013) explained:

Emergentism, as used in an Applied Linguistics context, assumes that the patterns of language development and of language use are neither innately prespecified in language learners/users nor are they triggered solely by exposure to input. Instead, language behavior is said to emerge from the interaction between the agent and the agent’s environment (Larsen-Freeman and Cameron in press); (Ellis, N and Larson-Freeman (2006) p.577).

In line with this analysis, Ellis and Larson-Freeman (2006) argued that language is a social construct: “Language is socially constructed. Language use, social roles, language learning, and conscious experience are all socially situated, negotiated, scaffolded, and guided. They emerge in the dynamic play of social intercourse” (p. 572).

Brown (2007) also described the role of nurture and the environment as crucial conditions for language development and stresses the role of these inputs. He also

suggested that language development is better explained when taken in its social context and seen from its functional and interactional perspectives. He illustrated, using Holzman's (1984) 'reciprocal model of language development', that "a reciprocal behavioral system operates between the language-developing-infant-child and the competent [adult] language user in a socializing-teaching-nurturing role" (p.119, cited in Brown, 2007, p.34). As with emergentism, language is presented as the result of the agent's interaction with the environment. In this regard, Bertin et al. (2010) also stressed the role of social interaction in language development: "for each individual human being its development will be the product of the social interactions s/he has been involved in" (p.59). This of course has several implications for language learning. Just as in social constructivism, language is acquired through the learner's interaction with his peers and with the tutor, as it will be discussed in Chapter 7. This argument justifies the choice of PBL to teach ESP. In problem-based learning, learners learn for a purpose and interact with one another naturally, will be outlined in Chapter 9. They communicate while they work and naturally use language. This leads to the consideration of another aspect in language development, communication.

6.2. Language and Communication

Bloomer, Griffiths and Merrison (2008) explained that language is part of human communication: "language is included within what is meant by communication" (p.15); it is 'reciprocal' whereby "a sender of a message can also be the receiver" (p.13), having approximately the same roles. This aspect of language also has implications for language learning, as it highlights the purpose of language; language is used for communication and should be learnt as such.

Bloomer et al. (2008) used Jakobson's (1960) *Model of Linguistic Communication* as an example that shows the deep connection between language and communication. In this model, six components of verbal communication have been identified: addresser, addressee, context, message, contact, and code. When language is in use, it involves the same mentioned communication factors as in this model. This model also highlights the role of context for each situation of communication. The role of context is discussed later in this chapter, as it has even bigger implication for ESP

learning and is one of the reasons for implementing PBL in ESP teaching. PBL brings the context of the target field of the learner into L2 learning.

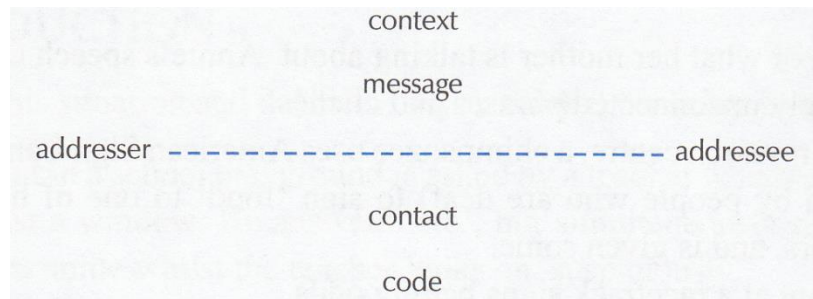


Figure 39; Jakobson's communication model (1960, cited in Bloomer *et al.*, 2008; p. 16)

According to this model, any utterance should carry a message that is impacted by context. However, as Bloomer *et al.* (2008) debated, this model does not capture the interactional aspect of communication. For this reason, they cited another model, Osgood and Schramm's communication model taken from McQuail and Windahl (1993), outlined in Figure 40 below.

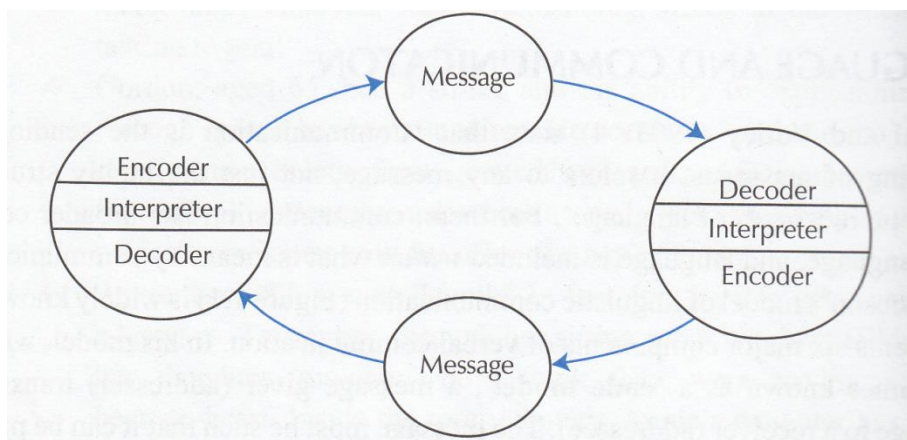


Figure 40; Osgood and Schramm's communication model (Bloomer *et al.*, 2008, p. 16)

This model seems to be more adequate to the general view of language development, as it highlights the interaction that results in the emergence of new output between participants.

Harmer (2005) reported that language and communication were also addressed by Halliday in the 1960s, who stressed two aspects of language through Systemic Functional Linguistics (SFL). In SFL, language is seen as a system (i.e., 'systemic') emphasis is put on meaning in context and the practical use of language for a particular purpose or a goal (i.e., 'functional'; Harmer, 2005).

Harmer (2005) argued that language is guided by a purpose, what one wants to say. It entails that when using language, no matter whether one is speaking, writing, texting or emailing, one chooses specific forms of language that serve specific functions. This definition embraces the same principles, which is consistent with the functional view of language:

Whether language users are texting emailing, speaking or letter writing, they are making choices about the language they use based on what they want to say, what medium they are operating in, how texts are typically constructed in such situations, what grammar they can find to express their meanings (p.25).

In other words, language communication is impacted by context which is considered in the next section. Richards and Rodgers (2001) reported that language, as communication, has given rise to the functional/ notional view. They reported that this view has impacted language teaching in a way that counteracted the role of structure learning with the emphasis on meaning in context:

The view that language is a vehicle for the expression of functional meaning emphasizes the semantic and communicative dimension rather than merely the grammatical characteristics of language, and leads to a specification and organization of language teaching content by categories of meaning and function rather than by elements of structure and grammar (p. 153).

This is another argument that supports the choice of PBL as an alternative methodology to the structural language teaching in context associated with this study. Students would learn the language for a purpose and use it to find information in reading; to communicate their findings in speaking and writing; they listen and speak to one another. Therefore, all the necessary conditions for language learning are made available for the language learner.

6.3. Language and Context

Context is very important for language users, readers, or hearers to disseminate meaning and to make the proper selection of linguistic forms to convey a particular message in a specific situation. Halliday (2004) defined language as “a resource for making meaning in context” (p.3). Halliday (2004) also used the analogy of the climate and weather to highlight the functional aspect of language and show the impact of context on meaning; he argues that language exists as a system and as ‘a set of texts’ whose relationship is like that of the weather and the climate.

Climate and weather are not two different phenomena; rather they are the same phenomenon seen from two different standpoints of the observer. What we call 'climate' is weather seen from a greater depth of time. It is what instantiated in the form of weather. The weather is the text: it is what goes on around us all the time, impacting on and sometimes disturbing our daily lives. The climate is the system that underlies these variable effects (p.27).

Every text serves a purpose and has the ability to impact lives with the meaning it carries. Language, again, is presented as a system with a broader meaning; it is a whole system within which a text or texts exist, and each context allows the emergence of different types of texts.

Egins (2004), another proponent of SFL, highlighted the semantic and functional aspects of language and asserted that meaning or meanings of the same utterance emerge from different contexts.

Language is used for a purpose to serve a particular function; meaning or meanings emerge from language use in a definite context and its social aspect. The fundamental purpose that language has evolved to serve is to enable us to make meanings with each other...The overall purpose of language then can be described as a semantic one, and each text we participate in is a record of the **meanings** that have been made in particular context (p.11).

Bloomer et al. (2008) stated that context disambiguates meanings and guides understanding of language. The authors illustrated this idea with the following example: "Special offer: free child with every full paying adult" (p.83). Bloomer et al. (2008) contended that only context can make this statement unambiguous: "knowing that the topic is about theme park admission leads people to conclude that it's not a free child, but rather a free child's admission that is being offered" (p.83). They also stated that "contextual knowledge about how the world works" (p.84) can also lead to the right understanding of this post. This shows how language is impacted by knowledge of the world, which is similar to Perkin's (1994) model, as discussed above. In terms of language learning, this argument further demonstrates that language cannot be learnt simply by rote memorizing certain chunks, which is rarely useful in natural communication; when language users face new emergent situations, they fail to handle them.

MacDonald, Badger and White, (2000) explained that for Halliday (1978) context or "a linguistic situation has a strong, if not a determining, influence on the language

produced in that situation” (p. 255). They added that this situation can be explained in three different ‘meta-functions: field, tenor and mode’:

Field, roughly speaking, covers the “socially recognized action the participants are involved in” Halliday (1978:143) or purpose, as well as the topic. Tenor covers the relationship between the speaker and audience and includes the kind of interaction and the level of formality. Mode covers “the selection of options in the textual systems... and also the selection of cohesive patterns”. (Halliday, 1978: 144, what we would gloss as the organisational patterning of the text (p.255).

These three meta-functions influenced discourse and register explanation in language production, as indicated below. In ESP, the notion of context gives rise to ‘discourse analysis approach’, a teaching approach in ESP that is discussed in Chapter 8. In PBL, language is presented in context, in a problem-scenario and students have to deal with entire texts about a particular topic and develop the skills of understanding the discourse of their field, in this case medicine. All language items including vocabulary and structure are presented in context. We, therefore, hypothesize that PBL naturally brings the context of the learners’ field and topics related to their studies into language learning.

6.4. Language and Register

Like McDonald (2000), Montgomery (2009) stated that “the notion of register helps to clarify the interrelationship of language with context by handling it under three basic headings- field, tenor and mode” (p.125). The field can be the activity in which an utterance is produced: “‘scalpel...clips...swab here’ would have as its field the activity of a surgical operation...” (p.125). He added that not all utterances (spoken or written) are produced during an activity, and, therefore, field can also refer to the topic of a text. Montgomery (2009) drew the conclusion that “The field, therefore, may vary from being intrinsic to the text ... or extrinsic to the text as in the case of examples of activity-based talk” (p.126). He also explained that vocabulary is the most affected area of language by the notion of field. This fact leads to the rise of a specific type of vocabulary ‘technical, specialized and field-specific vocabularies’. He suggested that words like “ ‘software’, ‘disk-drive’, ‘peripherals’, ‘data- storage’, ‘USB key’, ‘data stick’, ‘pen drive’, ‘motherboard’ and ‘flash drive’ are probably exclusive to fields related to computing”

(p.126). This is the reason why register has been impacting ESP learning/teaching since the 1960s, as will be outlined in the ESP chapter.

The second aspect of register presented by Montgomery (2009) is tenor. Tenor has to do with the choice of particular words or structures to fit specific social situations and maintain definite social relationships. Montgomery (2009) explained that the notion of tenor “highlights the way in which linguistic choices are affected not just by the topic or subject matter of communication but also by the kind of social relationship within which communication is taking place” (p.127).

He illustrated this claim with different utterances serving the same communication needs (e.g., opening a door), but different in the degree of politeness, power status, and degree of obligation. This is also applicable to the choice of certain pronouns in certain languages for the forms of personal address. It is also associated with adequate choice of address terms to certain people with specific social ranks. Montgomery (2009) also argued that the selection of certain utterances is also able to manipulate and change social relationships.

The third aspect of register is mode, and Montgomery (2009) argued that this has to do with the ways or channels of communication people use, such as written or spoken forms. He also asserted that these two forms are also developed and mastered in a different way:

We develop the capacity to speak very early in life with little conscious awareness of the processes involved and with little explicit instruction. Writing on the other hand, is rarely acquired except by explicit instruction and as the focus of conscious attention (p.130).

The notion of register gave rise to a teaching approach in ESP, ‘Register Analysis’, as indicated in Chapter 10. The reason is that different fields have their own register. It is important for the ESP learner to master this register. In the needs analysis conducted within the institution included in this study, the students expressed their needs for learning more medical terms during the PYHC English course. It was, therefore, hypothesized that PBL can give the students ample access to medical terminology through studying specific topics related to their domains while dealing with problem-scenarios and thus allows the learning of the medical register.

6.5. Language and Discourse

Halliday (2004) debated, the basic functions of language are “making sense of our experience and acting out our social relationships” (p. 28). Montgomery (2009) also stated that language establishes and maintains our social relationships, as “talk is intimately implicated in the day-to-day making and taking of roles and in establishing, confirming and maintaining relations between people” (p. 236). Johnstone (2008) confirmed this claim, stating that “people constantly create and negotiate relationships with each other in the process of interacting, via discourse moves that make claims to equality, inequality, solidarity, or detachment” (p. 139). Johnstone (2008) added that language production is directed by our social relationships: “There are situations in which social roles are relatively fixed in advance, and in which people are expected to use and interpret discourse in relatively pre-set ways” (p.139).

Frankenberg-Garcia, Flowerdew and Aston (2011) argued that corpus linguistics highlighted this aspect of language as a social phenomenon and showed how important it is to know what someone wants to say and how to understand it.

Corpus linguistics provides the methodology to extract meaning from texts. Taking as its starting point the fact that language is not a mirror of reality but lets us share what we know, believe and think about reality, it focuses on language as a social phenomenon, and makes visible the attitudes and beliefs expressed by the members of a discourse community (Frankenberg-Garcia et al.; 2011; p.3).

This view that language should follow a special form, register, and social convention of a particular discourse community has great implications for ESP learning and it was addressed particularly in genre analysis. It is important to learn/ teach ESP in the context of the learner’s domain. The discourse analysis approach is also another move in the history of ESP, which is discussed in Chapter 9. The learner has to get acquainted with the standards and conventions of the target discourse community, and, perhaps, the best way to do it is to use and produce the language in its context that can be provided to the learner through PBL. PBL can foster learners’ understanding of discourse in their field.

6.6. Language and Content

Bertin *et al.* (2010) explained that language is “not an end in itself” (p.60); messages carry contents and it is this content which matters.

The role of [language] is to enable us to exchange messages whose content is already stored in a way that does not necessarily reflect the way our interlocutor has stored it. This content (informational, affective, disciplinary, or scientific) matters more than the linguistic forms used to express it (p.61).

They suggested that language users exchange messages and negotiate meaning “*on a given subject, in a precise field to gain something*” (p. 61). Therefore, these factors should be taken into consideration in language learning and teaching. This specificity led to the emergence of Content and Language Integrated Learning (CLIL). Taillefer (2013) reported a useful definition for CLIL as follows:

The definition of CLIL proposed by the LANQUA project is that of: “an umbrella term for all those HE approaches in which some form of specific and academic language support is offered to students in order to facilitate their learning of the content through that language” (LANQUA Frame of Reference: 4). The underlying “virtuous circle” concept is that knowledge and understanding cannot be constructed or evaluated without the language of the discipline in question, and at the same time, that language can only be learned through using it in authentic and relevant contexts (par. 11).

In CLIL, language and content are learnt at the same time; “CLIL, Which has its origins in Europe in the 1990s, is a European response to the need to improve language learning opportunities” (Sasajima, 2013, p. 57) as a reaction to EMI that has not been successful enough in terms of language. Faure (2012) stated that combining language and content not only helps learners gain time in their learning, but also increases their motivation. In a field research, she came to the conclusion that “Trying to introduce data that had not been seen in medicine classes is not advised: medical students already have a huge amount of information to learn, and wandering off the syllabus is considered to be unnecessarily adding up on a workload that is already too heavy” (p. 6).

In accordance with this explanation, Wolff (2003) noted that CLIL “is based on the well-known assumption that foreign languages are best learnt by focusing in the classroom not so much on language – its form and structure – but on the content through which language is transmitted” (paragraph 2). He argued that language is taught better while delivering the content of another subject than when language is taught in isolation and that in a CLIL course, students will learn as much language as they learn content.

In relation to this study, in PBL, the students construct knowledge about their field (i.e., content) and language at the same time. PBL urges students to sort some problems in their fields of studies, and, thus, provides a natural context for students to use the language in their field for knowledge and it offers a practical solution to the equation of language and content at the same time. This argument further supports the hypothesis that PBL can meet EMP learners' needs. It is also hypothesized at the end of Chapter 11 that the implementation of PBL in the teaching of ESP, in general, and EMP, in particular, can be a new form of CLIL where both language and content are integrated and delivered to the learner at the same time in a natural context. It is hypothesized that PBL can bring content to language and can combine language and content.

6.7. Competence versus Performance

The following discussion is based on two views of competence versus performance, the mentalist and cognitive views. Ellis (2003) showed how the mentalist and cognitive approaches view competence and performance:

Generative linguists are primarily concerned with describing and explaining linguistic competence, which they treat as independent of performance (see, for example, Gregg 1989 for the supposed superiority of such an approach) . Cognitive psychologists, however work with information-processing models that try to account for how knowledge is used in performance; thus, for them, how knowledge is represented is a function of how it is used (p.107).

Hutchinson and Waters (1987) explained how, from a mentalist view, competence and performance can be different. For instance, the ability to use internal rules to understand the meaning of a newly encountered word shows that knowledge and actual language production are not the same.

A simple way of seeing the distinction between performance and competence is in our capacity to understand the meanings of words we have never met before. For example, the expression 'multangular tower' occurs in a widely used English test. It is a word most people will never have seen. But, if you know the prefix 'multi' (whether in your own language or English), the word 'angle' and the basic word formation rules of English, It is an easy matter to work out that a 'multangular tower' is a many-sided tower, that is, not a round or a square one (Hutchinson and Waters, 1987, p. 28).

Brown (2007) defined competence as the knowledge one has about the language and one's capacity to understand or produce this language. Performance is the observable realization of competence:

In reference to language, competence is one's underlying knowledge of the system of a language- its rules of grammar, its vocabulary, all the pieces of a language and how those pieces fit together. Performance is actual production (speaking, writing) or the comprehension (listening, reading) of linguistic events (Brown, 2007, p. 36).

Brown (2007) indicated that competence, therefore, is knowledge about the language and performance is what is done with the language. The author criticized the notion of competence as an “‘idealized’ speaker hearer, who does not display such performance variables as memory limitations, distractions, shifts of attention and interest, errors, and hesitation phenomena...” (p.36). He argued that despite the fact that the notions of competence and performance are revolutionary ideas and do account for another internal aspect of language that the behaviorist theories failed to explain, they face criticisms in some ways. Firth and Halliday (...cited in Stubbs, 1996, in Brown, 2007: 36) saw dualism as unessential and debated that language should be rather studied in use. Tarone (1988, cited in Brown, 2007) also explained that in ‘heterogeneous competence’, instead of placing some language lapses as slips of the tongue, for example, they can rather be regarded as a stage of development. This claim makes sense in a cognitive constructivist theory of language development, as in Piaget's assimilation and accommodation process of language learning, a topic which will be revisited in Chapter 7, learning.

Ellis (1994) explained that, in SLA, the meaning of competence has developed to include communication:

The distinction between competence and performance has been extended to cover communicative aspects of language [...] Communicative competence includes knowledge the speaker-hearer has of what constitutes effective language behavior in relation to particular communicative goals. That is, it includes both linguistic and pragmatic knowledge. Communicative performance consists of the actual use of these two types of knowledge in understanding and producing discourse (p.13).

Ellis (1994) further explained that researchers are interested in studying a learner's competence through his/her performance or introspective/retrospective methods, but still no one can get “a direct window into competence” (p.13).

He concluded that task-based learning, for instance, as a language learning approach is oriented towards cognitive learning: “Not surprisingly perhaps, task-based

researchers have been more attracted to cognitive models of linguistic representation” (Ellis, 2003, p.107).

6.8. Implicit versus Explicit L2 Knowledge and Language Production

Ellis (1997) reported that in the literature, L2 knowledge is usually divided into two major types: explicit knowledge and implicit knowledge. Ellis (2003) explained that implicit knowledge is what the speaker can say without awareness of underlying rules. For instance, native speakers know the difference between grammatical and ungrammatical utterances without being able to explicitly explain their judgement. On the other hand, “explicit knowledge refers to knowledge about language that speakers are aware of and, if asked, can verbalize” (Ellis, 2003, p.105). Eventually, implicit knowledge is easier to access and retrieve, no matter how ‘automatised’ explicit knowledge is.

Ellis (2003) reported that there is a wide agreement between linguists, SLA researchers, and cognitive psychologists that implicit knowledge consists of both rules that assist in the production of new statements as well as chunks, or ‘*exemplar-based linguistic knowledge*’, that are stored and retrieved as a whole from the memory.

There is now widespread recognition both by linguists, for example, Bolinger 1975, Pawley and Syder 1983, Nattinger and DeCarrico 1992, and by SLA researchers, Wong Fillmore 1976, Myles et al. 1999, that formulaic chunks constitute a substantial part of linguistic knowledge. Cognitive psychologists also acknowledge the existence of both modes and representations (p.106).

He argued, however, that the dispute is about the relationship between the two types of knowledge. Two views exist: the generative grammarians, for instance, hold the view that the two systems are completely separate, while cognitive psychologists argue that “prefabricated patterns serve as a basis for subsequent rule development when learners come to recognize the separate units that comprise the patterns” (Ellis, 2003, p.107). Those who believe that rule and exemplar-based knowledge are separate, such as Krashen (1981; Krashen’s non-interface position) also believe that implicit and explicit knowledge are different and nontransferrable from one to the other. On the other hand, some researchers, such as Bialystok (1991, cited in Ellis, 2003) have argued that

implicit knowledge precedes explicit knowledge, as children first acquire implicit knowledge and then analyse it turning implicit into explicit:

Implicit knowledge, then, serves as a basis for the development of explicit knowledge. Such a model may also be applicable in some learning situations, for example, when learners begin by picking up an L2 through natural exposure but it is less relevant to classroom situations, where the teaching of explicit knowledge is emphasized (p.106).

As language development is concerned, Ellis (1997) argued that it is impossible to assume that all learning first takes place as explicit and then becomes implicit.

The process of learning a language would become impossible if every rule out of the thousands that comprise the grammar of a language had to be first learnt as explicit knowledge. It is much more reasonable to assume that rules can be acquired as implicit knowledge in the first instance (p. 111).

According to Long's interactional hypothesis (discussed in Ellis, 1997) L2 learners can learn implicit knowledge through exposure to comprehensible input in which language features are frequent, meaningful, and useful to the learners. Ellis (1997) reported that, in this view, L2 learning can be incidental, as in the case of EMI: "In classrooms where the L2 is the medium of instruction, fixed expressions associated with the routines of classroom management appear to be readily internalized" (p.118).

However, Ellis (1997) criticized this view and explained why it has been challenged:

Comprehension that results from a semantic analysis of the input, where the relationships between the elements that make up the text are inferred using contextual clues and world knowledge is unlikely to add anything to the learner's implicit knowledge. For this to happen some kind of structural analysis of the input is required (p. 119).

Although Ellis (1997) recognized that learning implicit input is incidental, he valued the importance of noticing and the role of the awareness of form in the process of L2 learning. He claimed that implicit L2 learning occurs when it is associated with awareness of the nature of the input and the gap to be filled. This involves noticing, comparing, and integrating the underlying structure that he summarizes in Figure 41 below.

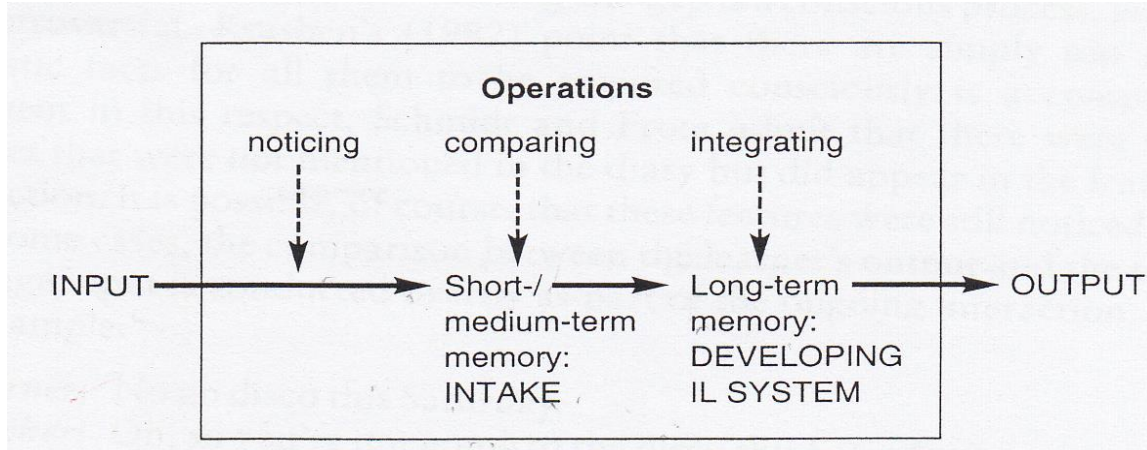


Figure 41: The Process of Learning Implicit Knowledge, Ellis, 1997; p. 119

The degree of consciousness of this learning, as Ellis (1997) argued, remains disputable, and it still occurs naturally via comprehensible input. In this study, it is argued that PBL can involve incidental language learning, as learners are engaged in content knowledge and problem solving, eventually processing comprehensible input.

Regarding explicit language learning, Ellis (1997) reported that this involves two processes: memorization and problem solving. The former takes place when the learner memorizes a language rule, for instance, and the latter occurs when learners try to figure out the rules themselves. Although Ellis (1997) stated that memorization can be enhanced through the use of learning strategies, such as mnemonics, he suggested that this is learnt in the same way as history dates, for instance, are learned: “the process is presumably the same as that involved in memorizing mathematical formulae or history dates” (p.117). However, Roberge (2013), a neuroscientist, advanced a completely different claim based on a study of the brain and its components. He explained how parts of the brain function and how this knowledge helps scientists to find out how humans can learn a second language, and, in particular, speak this language. He argued that L2 learning involves a different process from the one used when learning history or math:

D’ailleurs, la plupart des experts s’entendent sur une chose : l’apprentissage des langues sur le modèle traditionnel ne fonctionne pas au niveau neurologique. En effet il faut envoyer au cerveau des signaux indiquant clairement que l’on est dans un processus d’apprentissage linguistique, pour que les fonctions dévolues à la langue se mettent en activité. Alors si vous apprenez une langue comme vous apprenez de l’histoire, par exemple, en mémorisant des listes de mots comme des dates d’évènements, cela ne vas pas fonctionner. Vous allez retenir vos listes de dates et vos règles de grammaires, mais vous serez incapable de sortir trois mots ou de comprendre une phrase simple dans la langue cible (Roberge, 2013, par.14).

He stated that there are two areas in the brain that are responsible for language learning, namely *Wernicke's area* and *Broca's area*. The former is responsible for understanding the language, while the latter allows oral expression in one or more languages. The latter creates a different space for each language (except for the bilingual children in which *Broca's area* does not differentiate between languages that are learnt at the same time). In contrast, the *Wernicke's area* does not make any differentiation between languages. This explains why people sometimes understand an L2, but cannot speak it.

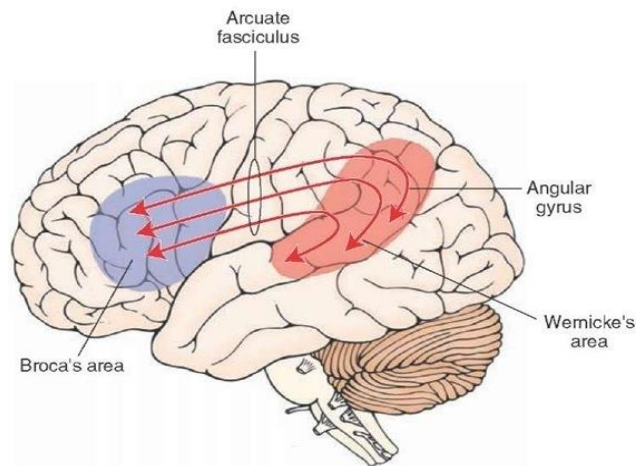


Figure 41; Roberge's (2013) *Language and Brain*

Evidence from neuroscience, as discussed above, has also aided cognitive psychologists forge the concept of L2 learning. Demaizière and Narcy-Combes J.P. (2005) reported that two views exist regarding language production:

Deux points de vue théoriques co-existent sur le fonctionnement de la production langagière. Pour certains, elle suit des règles, on parle de "système à base de règles" ("rule-based system"; pour la recherche sur la cognition, voir [Anderson93], pour celle sur la langue, voir [Levelt89] et [Levelt99]). Cette école est dominante depuis une vingtaine d'années. Pour d'autres, on produit de la parole également en mémorisant des instances d'utilisation, sortes de modèles tout faits en lien avec leurs contextes d'emploi. Il s'agit de "systèmes à base d'instances" (exemplar-based systems). Le chercheur de référence en psychologie cognitive pour la théorie des instances est Logan [Logan88] (p.46).

Ellis (2003) showed that relying on the internalized chunks as explained by the exemplar-based system works more easily than relying on rules in language production. Ellis used Levelt's (1989) Information-Processing Model in order to elaborate on this

fact. This model consists of ‘a *series of interlocking stages*’ starting from the speaker’s goal of speech or macro-planning through production. Ellis (2003) reported that language production is so complex, especially in speech, and it is possible due to the automatized chunks of language as drawing on rules is more demanding and slower. The solution resides in more learning of these chunks and “It is for this reason that speakers need to acquire a solid repertoire of formulaic chunks” (p. 108). Ellis (2003) explained that in this view fluency is favored over accuracy. In addition, sometimes the speaker needs to formulate a statement that is not available in this exemplar-based system and falls back on the rule-based system. With reference to Goldmen-Eidsler (1968), Ellis argued that this situation requires more efforts and “the extra processing effort this demands will result in overload, reflected in speech marked by pauses and other disfluencies that signal that planning is effortful” (p.108). Ellis (2003) added that this problem is magnified when L2 learners’ implicit knowledge lacks production demands, whether rules or formulaic chunks. In this case, the speaker has to draw on explicit knowledge and other problems will arise, such as L1 transfer.

Ellis (2003) reported that opposing this view is Robinson’s (1995) ‘multiple resources view of attention’, which suggested that “speakers have the capacity to handle different demands on their attention in parallel” (p.109). However, as Ellis (2003) explained, this view has been criticized.

In conclusion, the implicit knowledge rule and exemplar-based systems co-exist. Comprehensible input for learners is essential to develop and store formulaic chunks that can assist them and ease language production. This input has to be associated with comprehension as well as awareness and analysis. Rules should also be taught in a linguistic process associated with language use. Language production is complex and necessitates both systems. It may also be argued that different stages in a PBL tutorial provide L2 learners with various opportunities to learn the language: comprehensible input that requires semantic processing, turning this input into language production through summaries of input, language production during planning and negotiation can be associated with linguistic feedback, language production is fostered through the practice

of L2 in authentic real-life situations, and speech in presentation can foster learners' control over what is learnt.

6.9. Summary

The discussion above indicates that language is a complex system. Its development involves a continuous cognitive process of construction and reconstruction, and it is realized through the individual's social interactions. Language is emergent and unpredictable. Its major function is to establish relationships between speakers and convey different meanings in different contexts. Language in use is also impacted by context and is underlined by the selection of specific register and discourse. It also carries content and it is a means through which one can learn other skills and knowledge. This paves the way to explain the view that language is not the result of the rehearsal of some language rules and it is not the outcome of habit formation as it is practiced within the institution included in this study. This view has implications for language learning and it guides the choice of language learning theories that will be discussed in Chapter 6.

In the needs analysis in this study, it was reported that the teaching materials and methods used in the institution are based on behaviorist theories, the Structuralist Language View, the Audio-Lingual Method, and grammar translation method. First, the meaning of learning in these theories, views and methods will be elaborated upon, followed by a discussion of their limitations from the perspective of other learning theories and language teaching approaches.

Chapter 7: Learning

7.1. Definition of Learning

Because Problem Based Learning does not only involve language learning, but also skills and knowledge, the general meaning of learning and then L2 learning will be examined. Learning, in general, has been defined in several ways, which Bonnet *et al.* (2003) grouped under two big ‘families’. The first group identifies learning as a change in behavior, while the other defines it as a change in the knowledge of the individual. The authors differentiate between *performance* and *apprentissage*, where the former involves temporary changes that can be observed, but might not last for long. On the other hand, *apprentissage* implies changes in the abilities of the individual to realize a task. Bonnet *et al.* (2003) quoted Christian George (1991) who asserted that for an individual “[*l’apprentissage est*] une modification de sa capacité de réaliser une tâche sous l’effet des interactions avec son environnement” (p.209). This meaning implies that to learn is to become able to do something and that this ability develops through the learner’s interaction with his/her environment.

Brown (2007) defined learning as a change in behavior. It includes the acquisition and retention of both information and skill and involves cognitive processing and a storage system. It requires practice and reinforced practice, as outlined in the following:

- 1- Learning is acquisition or “getting”.
- 2- Learning is retention of information or skill.
- 3- Retention implies storage systems, memory, cognitive organizations.
- 4- Learning involves active, conscious focus on and acting upon events outside or inside the organism.
- 5- Learning is relatively permanent but subject to forgetting.
- 6- Learning involves some form of practice, perhaps reinforced practice.
- 7- Learning is a change in behavior.

(Brown, 2007, p. 8)

This definition also makes sense for L2 language learning, since it involves the same learning processes. However, the meaning of ‘*apprentissage*’, as previously discussed, is a change in knowledge associated with the ability to do things is closer to the meaning of learning used in this study.

Kolb and Kolb's (2005) definition of learning is another definition that reflects a view of learning adopted in this study and is in line with learning as conceived in problem-based learning is Kolb and Kolb (2005) cited Dewey (1997) to define learning:

Learning is best conceived as a process, not in terms of outcomes. To improve learning in higher education, the primary focus should be on engaging students in a process that best enhances their learning—a process that includes feedback on the effectiveness of their learning efforts. "...education must be conceived as a continuing reconstruction of experience: ... the process and goal of education are one and the same thing." (Dewey 1897: 79, cited in Kolb and Kolb, 2005, p.3)

They summarized the meaning of learning from a constructivist perspective. They stated that the main source of learning is experience and learning should be viewed as a process of learning and relearning, which should engage the students holistically; "2. All learning is relearning. Learning is best facilitated by a process that draws out the students' beliefs and ideas about a topic so that they can be examined, tested, and integrated with new, more refined ideas" (p.3).

In the first and second part of the definition, Kolb and Kolb (2005) emphasized the meaning of learning as a process in which feedback is a corner stone in students' learning.

3. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences, and disagreement are what drive the learning process. In the process of learning, one is called upon to move back and forth between opposing modes of reflection and action and feeling and thinking (p.3).

In the third part of the definition, Kolb and Kolb (2005) showed the role that differences can play in the learning process and reflection is stimulated by conflicts and their resolutions.

4. Learning is a holistic process of adaptation to the world. It is not just the result of cognition but involves the integrated functioning of the total person—thinking, feeling, perceiving, and behaving (p.3).

In the fourth point, Kolb and Kolb (2005) debated that learning occurs through a total involvement of the learner as a human being, not only cognition.

5. Learning results from synergetic transactions between the person and the environment. In Piaget's terms, learning occurs through equilibration of the dialectic processes of assimilating new experiences into existing concepts and accommodating existing concepts to new experience (p.3).

In the fifth point, Kolb and Kolb (2005) explained learning as in Piaget's concept, a process of assimilation and accommodation of a new experience in an interactive process with the environment.

6. Learning is the process of creating knowledge. ELT proposes a constructivist theory of learning whereby social knowledge is created and recreated in the personal knowledge of the learner. This stands in contrast to the "transmission" model on which much current educational practice is based, where pre-existing fixed ideas are transmitted to the learner (p.3).

Lastly, Kolb and Kolb (2005) opposed the meaning of learning in a constructivist approach to previous models in which learning used to be conceived as a transmission of knowledge. The proper meaning of learning should rather be associated with the development of competence. This is the view of learning that guides this work, whether in PBL, as it will be elaborated upon in subsequent chapters, or in language learning. To start with, in the next section, the terms used in language learning will initially be discussed.

7.2. Language Acquisition, Learning, or Development

Krashen (1982) distinguished between language learning and language acquisition. He defines learning as the "conscious knowledge of a second language, knowing the rules, being aware of them, and being able to talk about them", whereas acquisition as the subconscious process of language learning without instruction:

Language acquisition is a subconscious process; language acquirers are not usually aware of the fact that they are acquiring language, but are only aware of the fact that they are using the language for communication. The result of language acquisition, acquired competence, is also subconscious. We are generally not consciously aware of the rules of the languages we have acquired. Instead, we have a "feel" for correctness. Grammatical sentences "sound" right, or "feel" right, and errors feel wrong, even if we do not consciously know what rule was violated (Krashen, 1982, p. 10).

For Ellis (1985), however, there is no evidence of the extent to which the process of language learning can be conscious or subconscious; therefore, this distinction is unnecessary:

The term 'second language acquisition' refers to the subconscious or conscious processes by which a language other than the mother tongue is learnt in a natural or a tutored setting. It covers the development of phonology, lexis, grammar and

pragmatic knowledge. The process manifests both variable and invariable features (p. 6).

As proponents of Dynamic Systems Theory (DST), DeBot *et al.* (2013), for instance, used the term Second Language Development (SLD) rather than learning or acquisition in order to emphasize the importance of the social factor in language learning. For this study, the terms acquisition, development, and learning will be used interchangeably.

In the next sections of this chapter, L2 learning will be examined from different theoretical perspectives for two major reasons. The first reason is to explain why L2 learning in the institution included in this study is not working as it should. The other reason is to explain how L2 learning is viewed in this study, and, therefore, justify the choice of PBL as a ‘language learning methodology’. Within the framework of language didactics, Bertin (2012) encouraged this in order to understand the studied phenomenon due to its inter-disciplinarity feature:

[La didactique des langues] sollicite et met en synergie les diverses disciplines scientifiques nécessaires à la compréhension du phénomène étudié. Globalement, comme il s'agit de comprendre les mécanismes d'acquisition ou de non acquisition de l'anglais, elle s'intéresse aux disciplines qui rendent compte des savoirs, des discours, des comportements, des interactions entre acteurs, de la technologie et de sa place dans la classe de langues, etc.

7.3. The Behaviorist Learning Theories and Their Impact on L2 Learning

Harmer (2005) reported that two psychologists, Watson and Raynor (1920), conducted an experiment on a 9-month-old-infant, Albert, to show that conditioning takes place through reinforcement of certain behavior and that behavior can be predicted on the basis of a particular stimulus. They showed that conditioning or habit formation can be realized in three stages: stimulus, response, and reinforcement.

The idea of reinforcement and conditioning is the essence of all the behaviorist theories: a lot of other experiments with similar effects have been carried out by other psychologists within the framework of the *stimulus-response model*. Craddock and Guerrien (2003) reported that the concept of *stimulus-response* was empirically supported by different research in psychology, such as Thorndike’ (1874- 1949) *associationnisme*;

Watson and Guthrie, *la loi de fréquence* ; and Hull and Skinner, *l'effet des régularités dans les renforcements délivrés par l'environnement*.

Ellis (1999) explained that habit is associated with two characteristics: (1) behavior is observable and (2) mental processes do not exist.

The first was that they were observable. As Watson argued, the true basis for psychological enquiry existed only in objects that could be touched and actions that could be observed. Watson denied the existence of internal mental processes, dismissing them as superstition and magic (p.20).

Ellis (1985) suggested that for learning to occur, these habits have to become automatic and “that is they are performed spontaneously without awareness and were difficult to eradicate unless environmental changes led to the extinction of the stimuli upon which they were built” (p. 20). Similarly, Taylor and Taylor (1990) argued that, the learning theories which are based on the concept of *stimulus-response*, constrict learners’ abilities to learn to matching stimuli to similar ones.

The innate abilities required are relatively simple: the ability to form associations between stimulus and response, between co-occurring stimuli, or between stimuli that occur in like contexts; to generalize among similar stimuli; and to discriminate among different stimuli, and so on. Beyond these simple abilities that they share with other animals, humans might not possess higher order innate mechanisms for processing linguistics, perceptual, and cognitive information (p. 322).

This discrimination between what is similar and what is different constitutes one major learning principle in the audio-lingual method, which is analogy. Cognitive and other learning abilities were denied and learning was only viewed as habit formation.

Trawinski (2005) stated that the behaviorist theories shaped the concept of language learning in the sixties and the belief that language is learnt like any other type of behavior was spread, such that “language is acquired according to the general laws of learning and is similar to any other learnt behavior” (p.9). This view sees learning as a result of repetitive practice and ‘a process of habit formation ’following the stimulus-response-reinforcement stages. Structural linguistics, started with Bloomfield’s (1935) structuralism, and it has impacted course design for a long time (Richards & Rogers, 1987). Language was described in terms of structure, statement forms (affirmative, negative), and notion (time, number). The substitution table that the students used to make different sentences following a structure pattern is one example reflecting this view (Hutchinson & Waters, 1987). Puren (1988, cited in Tardieu, 2008) stated that this

method is based on two axes: The paradigmatic (vertical) axis and the syntagmatic (horizontal) axis:

- L'axe paradigmatic ou axe vertical sur lequel se situent les mots qui peuvent se substituer l'un a l'autre a un endroit déterminé de la chaîne parlée ou de la ligne écrite . Sur cet axe, la manipulation de base est la substitution*
- [L'axe syntagmatique ou axe horizontal]*
Sur cet axe, la manipulation de base consiste à passer d'une structure à l'autre : c'est la transformation (Puren, 1988 : 294- 295, in Tardieu, 2008, p.28).

A good example of the first axis is the substitution table that is found in the Product Approach to teach writing and reflects this notion of pattern practice and drill. It is based on the same psychological and linguistic assumptions of habit formation through repetition and imitation of a given model.

Ellis (1997) argued that one of the advantages of a structuralist syllabus, based on this view, is that it helps learners notice the structure of input;

A structural syllabus can serve as a basis for the development of either implicit or explicit knowledge. In the case of the former, the aim of the syllabus is the development of the kind of intuitive knowledge that is required to communicate in the L2. In case of the latter, the aim is knowledge about the language- some kind of conscious representation of the rules that make up the language (p136).

However, it may be argued that this behaviorist principle encourages imitation of a structure to produce novel sentences in which the two processes of noticing and imitation can be completely different. Imitation is primarily associated with mindless copying of the structure where awareness and understanding, which are involved in noticing, are not necessarily present. Eventually, the extent to which this noticing can occur remains disputable. Ellis (1997) also reported that “The principal problem is that of learnability, the extent to which it is possible for learners to learn the structures they are taught” (p.136).

Richards and Rodgers (1987) explained that the structuralist view, in turn, has impacted language teaching methods such as the Audio-Lingual Method, Total Physical Response, and the Silent Way.

Audio-lingualism is based on Skinner’s behaviorism and neo-behaviorism from 1960s. The audio-lingual method is a teacher-centered method to language learning and it is an offshoot of the structural view of language learning and behaviorist theories. It uses the stimulus-response-reinforcement model, as discussed above. According to Ellis (1999), Skinner turned down the role of stimulus in favor of imitation.

The learning of a habit then could occur through imitation [...]. It was also believed that SLA could proceed in a similar way. Imitations and enforcement were the means by which the learners identified the stimulus response associations that constituted the habits of the L2 (p. 21).

Gaonac'h (2006, cited in Tardieu, 2008; 30) explained that, in this method, learning was seen as habit-formation through constant repetition and reinforcement of information in a particular situation¹³. In line with this explanation, Richards and Rodgers (1986) elaborated how this view impacted learners' role and learning.

Drilling techniques were used and learners' roles were limited to this repetition. Errors were not tolerated and were seen as an obstacle to be overcome. Much of the criticism of audio-lingualism came from the recognition of the very limited roles available to learners in audio-lingual methodology. Learners were seen as stimulus-response mechanisms whose learning was a direct result of repetitive practice (Richards and Rodgers, 1986, p.56).

Trawinski (2005) described these drilling techniques as thoughtless, with the main objective being "over learning and the automaticity of L2" (p.10). Automaticity was also sought to be gained through memorization; Richards and Rogers (1986) described memorization as a major type of a learning activity in the audio-lingual method.

Dialogues are used for repetition and memorization. Correct pronunciation, stress, rhythm and intonation are emphasized. After a dialogue has been presented and memorized, specific grammatical patterns in the dialogue are selected and become the focus of various kinds of drill and pattern practice exercises (p.59).

Krashen (1982) argued that the aim of drills is habit re-enforcement and memorization of the input without focus on comprehension. Production is expected to be immediate and error-free. Error is seen as a handicap for the appropriate development of L2, and, therefore, accuracy is emphasized. This is why real interactions between students are not encouraged, as they might be sources for error occurrence, as Richards and Rodgers (1986) explained. Learners' roles are limited to responding to stimuli, listening to the teacher, imitating him/her, memorizing material, and reproducing what is presented to them.

Learners are viewed as organisms that can be directed by skilled training techniques to produce correct responses. In accordance with behaviorist learning theory, teaching focuses on the external manifestations of learning rather than the learning processes. Learners play a reactive role by responding to stimuli, and thus have little control

¹³ « Si conjonction entre comportement et renforcement, dans une situation donnée, est répétée, il y a apprentissage » (2006, cited in Tardieu, 2008; 30)

over the content, pace or style of learning. They are not encouraged to initiate interaction because this initiates mistakes (p.62).

Error origin is seen as the result of L1 interference with L2; the belief is that when rules in the two languages are the same, positive transfer occurs. However, when the rules are different, negative transfer will inhibit L2 learning and errors will occur. This assumption has given rise to contrastive analysis in which the learner's L1 and L2 are contrasted to find differences and predict errors. However, this is challenged on empirical bases that have invalidated research in this area (Ellis, 1999; Richards & Rogers, 1986). Trawinski (2005) explained that contrastive analysis makes false predictions about possible error occurrence:

- Many errors were not caused by the interference between the languages.
- Many errors predicted by contrastive analysis never occurred (Larsen-Freeman (1994, p. 55, in Trawinski, 2005, p.11).

The learning goal of the audio-lingual method, as Krashen (1980) summarized, is “to have the students over-learn a variety of patterns to be used directly in performance” (p.132). Krashen (1980) reported that meaning is not considered important and does not come first:

While the presentation of a dialogue, for example, may take up a full period, students spend very little of this time focusing on the message, which is presented over and over. The goal is the memorization of the dialogue, not the comprehension of a message. Pattern practice may also be comprehensible in theory, but students probably do not attend to meaning after the first few repetitions (p.133).

Krashen (1980), in his input hypothesis, stressed the role of meaning in learning and argued that meaning should be given priority in language teaching over structure learning.

7.4. Krashen's Input Hypothesis and the Affective Filter Hypothesis

The input hypothesis suggests that it is possible for a learner to understand some language beyond the present abilities or competence because humans use more than language linguistic structure to understand information; context and knowledge of the world are also used:

The input hypothesis runs counter to our usual pedagogical approach in second and foreign language teaching. As Hatch (1978a) has pointed out, our assumption has been that we first learn structures, then practice using them in communication, and this is how fluency develops. The input hypothesis says the opposite. It says we acquire by "going for meaning" first, and as a result, we acquire structure (Krashen, 1980, p. 21)!

Krashen (1980) debated that meaning is essential for language learners to move from stage 1 to stage 2, which shows further limitations associated with the structuralist view:

How do we move from stage i , where i represents current competence, to $i+1$, the next level? The input hypothesis makes the following claim: a necessary (but not sufficient) condition to move from stage i to stage $i+1$ is that the acquirer understands input that contains $i+1$, where "understand" means that the acquirer is focused on the meaning and not the form of the message (p. 20).

Bertin et al. (2010) pointed out that meaning in language learning leads to deep processing, which is, in turn, crucial for effective learning:

There has long been an agreement (see above) that meaning matters more than form(s) which cannot be processed adequately when detached from meaningful contexts. As a consequence, deep processing is a determining parameter. Strictly behaviorist activities can no longer be justified even if they still dominate some courses (on or offline) (p. 89).

Bertin et al. (2010) added that both first language and second language acquirers receive modified input for the purpose of communication. In the first case, this modified input is the one provided by the caretaker to the child. In the second situation, it is the teacher or foreigner talk that is modified so that communication is achieved. This input is part of real communication that fosters language learning. Krashen (1980) opposed the benefits of this input to the drawbacks resulting from the structuralist syllabus:

- (1) All students may not be at the same stage. The "structure of the day" may not be $i+1$ for many of the students. With natural communicative input, on the other hand, some $i+1$ or other will be provided for everyone.
- (2) With a grammatical syllabus, each structure is presented only once. If a student misses it, is absent, is not paying attention, or if there simply has not been enough practice (input), the student may have to wait until next year, when all structures are reviewed! On the other hand, roughly-tuned comprehensible input allows for natural review.
- (3) A grammatical syllabus assumes we know the order of acquisition. No such assumption is necessary when we rely on comprehensible input, on roughly tuned natural communication.
- (4) Finally, a grammatical syllabus, and the resulting grammatical focus, places serious constraints on what can be discussed. Too often, it is difficult, if not impossible, to discuss or read anything of real interest if our underlying motive is to practice a particular structure. In other words, a grammatical focus will usually prevent real communication using the second language (p.25- 26).

The audio-lingual method, according to Krashen (1980), provided the learner with comprehensible input. However, the assumed role that this input plays is open to argument, as it is not necessarily associated with comprehension.

It can be maintained that audio-lingual methodology does provide comprehensible input. The dialogues and pattern practice are certainly understandable by most students, although some theorists have said that in early parts of a lesson actual comprehension is not necessary, that purely mechanical drill is useful (p.130).

Krashen (1980) took the notion of input a step further from the audio-lingual method by introducing the role of meaning. However, this theory has been criticized in the sense that it does not consider the learner interaction with the input, and, therefore, the learner remains passive while language learning requires the learner to react to the input and interact with it (Tardieu, 2008); “The theory [the input hypothesis] only requires that the learner should be a kind of humanoid receptacle in a maximal state of receptivity so that the input can enter to work its mysterious way” (Widdowson, 2002, p. 23 in Tardieu, 2008, p. 157).

It is true that Krashen (1980) did not address the learner’s interaction with this input, but the comprehensible input is associated with the notion of meaning to the learner and its comprehension is a condition for learning. Therefore, the learner cannot be seen as passive, as is the case with the audio-lingual method, for instance. However, as Tardieu (2008; 157) argued that comprehension alone cannot result in language acquisition and concluded; ‘If the activity of understanding does not necessarily involve the acquisition, (centered on the search for meaning and not of form), it is normal that the production (of the form in the sense) does not arise from the simple understanding’¹⁴.

In addition to meaning, in his affective filter hypothesis, Krashen (1980) asserted that when students learn in an anxiety-free environment, their confidence and motivation are boosted and they are more likely to learn the language more effectively. This is also another move from the behaviorist theories in which the learner is seen as a mechanism

¹⁴ “*Si l’activité de compréhension n’implique pas nécessairement l’acquisition, (centrée sur la recherche du sens et non de la forme), il est normal que la production (de la forme au sens) ne découle pas de la simple compréhension*» (Tardieu, 2008 ; p. 157).

and that there is no consideration given to the learner's affect. The notions of meaning, interaction, and affect are valued by the PBL methodology, as discussed in Chapter 9.

7.5. A Mentalist View of L2

The rejection of the claims about stimulus-response, habit formation, and the ideas about error as forged by contrastive analysis were embraced by the Nativist (Innatist/ Mentalist) Linguistic Approach. According to Trawinski (2005), this approach is based on Chomsky's Universal Grammar and Lenneberg's Critical Period Hypothesis. The state of L2 acquisition is seen as an internal rather than an external process involving an innate language faculty, rule making, and hypothesis testing. Trawinski (2005) summarized the major claims of this approach as follows:

- Language is a human-specific faculty;
- The principles of language are inborn and not learnt;
- The process of language acquisition itself is independent of cognitive development, individual differences, form of language input, etc.;
- Language learning is viewed as a process of hypotheses-testing leading to rule formation;
- Input data is required to trigger the process of rule formation (but the mental processes are given priority over the role of environment) (p. 12).

He also explained how each of these theories contributed to the rise of the mentalist innatist approach. Chomsky (1965 in Taylor and Taylor, 1990) challenged the claim of habit formation and showed that an innate inherited universal language faculty, which is responsible for language learning, exists in the human brain. He referred to this as the Language Acquisition Device (LAD). Chomsky provided several reasons that justify the existence of such a faculty:

A consideration of the character of the grammar that is required, [1] the degenerative quality and narrowly limited extent of the available data, [2] the striking uniformity of the resulting grammars, [3] and their independence of intelligence, motivation, and emotional state, over wide ranges of variation, leave little hope that much of the structure can be learnt by an organism initially uninformed as to its general character (Chomsky, 1965. p. 58 in Taylor and Taylor, 1990, p. 321).

Chomsky also challenged the notion of analogy advocated by Skinner, which he counteracted by the idea of creativity (Ellis, 1999; Taylor & Taylor, 1990). Learning is seen as a mental process based on an innate faculty with which every human being is endowed. As for the Critical Period Hypothesis, it advanced the claim that learner age is an important factor in language acquisition and that "there is a limited period in human

life during which language acquisition is possible, natural and effortless” (Trawinski, 2005, p. 13).

Hutchinson and Waters (1987) pointed out that the structural view of language learning was also challenged by Chomsky’s Transformational Generative Grammar Theory (1957), which criticized ‘the structural view’ for being too superficial to explain meaning. The structural view also does not account for the communicative aspect of language and was, therefore, challenged by Chomsky’s Syntactic Structures (1957); the structural view fails to explain structure and meaning together (a sentence structure can be the same, but the meaning is different or vice-versa) and it results in a superficial description of language.

7.6. The Cognitive Learning Theory and Its Impact on L2 Learning

The cognitive theory brought new contributions to language learning and opposed the mentalist approach by suggesting that language is part of human cognition. Ellis (2003) argued that “a cognitive view stresses the essential similarity of linguistic knowledge and other forms of symbolic knowledge and disputes the existence of a separate mental module for language” (p.104). Patel and Jain (2008) explained that in the cognitive view three concepts are emphasized in learning: meaning, knowing, and understanding. Learning is viewed as “a meaningful process of ‘relating new events or item to already existing already cognitive concept’ and it is thought to involve internal representations that guide performance” (p.40).

Powel and Kalina (2009) reported that Jean Piaget believed that innate functional mechanisms, which allow the children to interact with their environment, exist in the brain rather than structures (Taylor and Taylor, 1990). Jean Piaget’s theory brought new insights in how learners learned as “Piaget thought in terms of students becoming ‘little scientists’ who learn voraciously as individuals who build conceptual structures in memory to store information” (Powel and Kalina, 2009, p. 245). The novelty of Piaget’s ideas is that the learner cognitively constructs his/her own knowledge. Knowledge is

constructed through a cognitive process and it is not merely information given to individuals to be used. Piaget (1977) explained his theory of knowledge; Cognitive Constructivism in a documentary 'Piaget on Piaget': "Je suis constructiviste ; c'est à dire que je pense que la connaissance est affaire de continuel construction nouvel par interaction avec le réel et n'est pas préformée. Il y a créativité continuel. Il y a continuelles construction et reconstruction ».

This theory is built on the evidence drawn from the observation of his children playing and from "the behaviors observed and explanations offered during spontaneous or constructed problem-solving situations that reveal the signature characteristics of different stages of development" (Fox & Riconscente, 2008, p. 378). The authors explained that in Piaget's theory, "children's schemas are constructed through the process of assimilation and accommodation, when going through four different stages of development" (p.380). This is an adjustment process that occurs while learning; assimilation occurs when children bring in new knowledge to their own schemas and accommodation is when they have to change their schemas to accommodate the new information or knowledge to existing ones.

This process is also true for language learning. Learning, as a cognitive process, involves testing hypotheses to modify the acquired knowledge about language. This contributed to further criticism of the behaviorist claims about errors as handicaps to learning. Error in the cognitive approach is seen as a necessary and natural step in language learning (Ellis, 1999; Richards & Rogers, 1986; Trawinski, 2005).

Piaget's notion of assimilation and accommodation and its impact on language learning can be seen in Anderson's (1979) Nativization Model. Ellis (1999) explained that this model L2 is seen as the result of a process of nativization and denativization:

Nativization consists of assimilation; the learner makes the input conform to his own internalized view of what constitutes the L2 system. In terms of the typology of learner strategies...the learner simplifies the learning task by building hypotheses based on the knowledge he already possesses. In this sense, then, he attends to an 'internal norm'. Denativization involves accommodation (in the Piagetian sense); the learner adjusts his internalized system to make it fit the input (p. 253- 254).

Demaizière and Narcy Combes J.P. (2005) also suggested that L2 acquisition involves the cognitive process of nativization and denativization or *apprentissage* and *re-apprentissage* or '*continual construction and re-construction of knowledge*', as Piaget

described it. For Demaizière and Narcy-Combes J.P. (2005), language learning, as a process, involves two continuous stages: *nativisation* and *dénativisation*. They define *nativisation* as « *le phénomène qui fait que l'apprenant perçoit et analyse toute nouvelle donnée langagière en L2 selon des critères déjà en place, qui lui sont personnels* » (p. 48). They contended that Language learning takes place when the learner cognitively processes new input and modifies the previously acquired knowledge to adjust it to L2 requirements: « *Un apprentissage de L2 ne peut donc être efficace que s'il permet de passer par un travail cognitif que l'on peut qualifier de dénativisation, qui permettra d'effacer les représentations erronées et de les remplacer par celles qui correspondent bien au système de la L2* » (p. 48). Demaizière and Narcy-Combes J.P. (2005) depicted how this process of *nativisation* and *dénativisation* can be realized in language learning through tasks and mediation. This topic will be revisited in this chapter's section about PBL and Task-Based Learning (TBL).

Other researchers, such as McLaughlin (1989), used the terms re-structuring to refer to this process of nativization and denativization. McLaughlin (1989) saw that re-structuring in L2 acquisition is a sign of language complexity and that “it is not simply linear and cumulative but is characterized by backsliding and loss of forms that seemingly were mastered” (p. 143-144). This occurs when learners meet new forms that are different from the ones they already mastered and need to restructure their system accordingly. Lightbown (1985, in McLaughlin, 1989), explained how this restructuring takes place, which is similar to a constant system repair:

[Re-structuring] occurs because language is a complex hierarchical system whose components interact in non-linear ways. Seen in these terms, an increase in error rate in one area may increase in complexity or accuracy in another, followed by over-generalization of a newly acquired structure, or simply by a sort of overload of complexity which forces a restructuring, or at least a simplification, in another part of the system (Lightbown, 1985 in McLaughlin, 1989, p. 177).

7.7. Socio-Constructivism and L2 Learning

In his social constructivist theory, Vygotsky suggested that students construct their knowledge while learning and emphasized the importance of the social factor in the learning process. Fox and Riconscente (2008) summarized this theory of learning and

showed how the social factor and social interaction of the learner are important in knowledge development:

As human beings we are born already immersed in an evolved society that uses conventional tools and signs. Development proceeds through the internalization of social interactions, with the fundamental social interaction being interaction through language. This internalization promotes increasing abstraction, which moves to the level of conscious abstractions or scientific concepts during the social institution of school instruction, in which culturally developed bodies of systematized knowledge are introduced (p.383).

Regarding language acquisition, two major claims of the theory impact language learning: scaffolding and the zone of proximal development (ZPD). Singh and Richards (2009) reported that in socio-cultural theories, the concept of learning is seen as “situated social practice which includes mediation, discourse, and participation structures” (p.201).

This theory has given rise to the Social Interactionist approach in language learning. Trawinski (2005) asserts that “social interactionists do not deny the existence of neuropsychological factors affecting language acquisition. However, they claim that biological factors are not sufficient. They also do not accept placing language as just one more element of cognitive development” (p. 17).

In Chapter 6, it was shown that language serves to maintain social relations between individuals and it is seen as “a vehicle for the realization of interpersonal relations and for the performance of social transactions between individuals” (Richards and Rodgers, 1986, p. 83). Richards and Rodgers (1986) explained how this view impacts language learning; language teaching content is partially left to the learner to be shaped by his/her own interaction with other actors. This idea can be seen in Task-Based learning, for instance, whereby the learner is expected to come up with his own ideas and input during interaction with others to fulfill a task (Nunan, 2004);

Interactional theories focus on the patterns of moves, acts, negotiation, and interaction found in conversational exchanges. Language teaching content, according to this view, may be specified and organized by patterns of exchange and interaction or may be left unspecified, to be shaped by the inclinations of learners as inter-actors (Richards and Rodgers, 1986, p. 83).

In accordance with this claim, Trawinski (2005) stated that in the social interactionist approach, learning is active; the learner interacts with others and applies cognitive processes to learn the language rather than simply receive information. The input should be handled by the learner to fit his/her needs:

The process of learning is not the solitary experimenting and analysis of the incoming information the learner is exposed to but the constant interaction with the mediator, who modifies the input to make it fine tuned (adjusted) to the cognitive and communicative needs of the learner (p.17- 18).

McCroskey and Richmond (1992) argued that classroom interaction increases learners' affect for a subject in addition to other benefits, such as students' feelings of ownership. In addition, these situations are good moments for teachers to observe their students and get feedback:

Students develop a greater affect for subjects taught via class discussion than by those taught strictly by lecture. Discussion allows students to formulate principles and applications in their own words, giving a sense of ownership to course concepts. Discussion also provides teachers with prompt feedback on how students are processing information (p. 261).

This view impacts language learning/teaching, such as task-based learning (TBL). As Nunan (2004) explained, the main objective is that "language can be taught as a tool for communication rather than as sets of phonological and lexical items to be memorized" (p.6). The interactionist approaches brought about new concepts and revolutionary ideas in the roles attributed to the language learner. At this stage, the learner could be given the opportunity to interact with others and intervene without a pre-determination of what s/he had to say. This, of course, is in complete contrast with the notion of passive learning dictated by the behaviorist theories and the audio-lingual method.

Neuroscientists Morgan-Short, Steinhauer, Sanz, and Ullman (2012) conducted a study to find out the difference between explicit (based on traditional grammar setting) and implicit foreign language learning (that approximates immersion) by adults, finding that these two types of learning affect the brain mechanisms differently. The results showed striking differences between the two groups' neural activity and that the implicit learning group came "to rely on native-like language brain mechanisms" (p. 934). This indicates immersion in language learning is a crucial factor in the efficiency of language learning. The findings showed that the performance of explicitly and implicitly trained groups did not differ at either low or high proficiency. In contrast, electrophysiological (ERP) measures revealed striking differences between the groups' neural activity, at both proficiency levels, in response to syntactic violations. Thus, only implicit training led to an electrophysiological signature typical of native speakers. Overall, the results suggested

that adult foreign language learners can rely on native-like language brain mechanisms, but that the conditions under which the language is learned may be crucial in attaining this goal.

This view that language is learnt when it is used and when opportunities are provided for students to interact in the language was confirmed by Long (2005):

To illustrate, for some 30 years now, researchers have repeatedly shown that learners do not acquire a new language one structure at a time (nor could, since so many structures are inter-dependent). Nor do they acquire in the theoretically and empirically unmotivated structural or notional-functional sequences found in linguistically based syllabuses and textbooks. This is true even when teachers and textbook writers attempt to teach them that way (see, e.g., Ellis, 1989; Hyltenstam, 1977; Lightbown, 1983; Pienemann, 1984). Learners are far more active and cognitively-independent participants in the acquisition process than is assumed by the erroneous belief that what you teach is what they learn, and when you teach it is when they learn it (Long 2005, p. 3).

This also coincides with the Systemic Functional Approach in linguistics, developed by Halliday (2002), which views language as a purposeful, goal oriented activity. The three words refer to language, system, and function (Eggins, 2004).

Many indicators in the classroom show that learning grammar rules can result in short-term knowledge where the students perform accurately. Students learn the rules in the structuralist course and rehearse, but these rules are not traced in, for instance, their writing following this learning. This is in tune with Long's (2005) position in that what is taught to students may not be what students learn.

7.8. Theories of Complexity, Dynamic Systems Theory and L2 Development

To Freeman (1997), language is a complex phenomenon and so is language learning. The process of learning the language or the route of learning is non-linear, filled with 'peaks and valleys', and it is affected with major and diverse factors. These factors interact together so that the learner develops a language system. Learner inter-language (IL) is impacted by the learner factors, the language in L1 and the one in L2, input, types of interaction, and feedback. All these factors interact together and continuously impact one another, keeping IL in a dynamic state. It is this interaction between the different factors that is crucial and can have a deeper impact on language development than one single factor alone.

The SLA process is also known to be complex. There are many interacting factors at play which determine the trajectory of the developing of IL: the source language, the target language, the markedness of the L1, the markedness of the L2, the amount and type of input, the amount and type of interaction, the amount and type of feedback received, whether it is acquired in untutored or tutored contexts, etc. Then, too, there is a multitude of interacting factors that have been proposed to determine the degree to which the SLA process will be successful: age, aptitude, socio-psychological factors such as motivation and attitude, personality factors, cognitive style, hemisphericity, learning strategies, sex, birth order, interests, etc. (p. 151).

Freeman (1997) and DeBot et al. (2007, 2013) argued that language learning and SLA have a lot in common with other various non-linear systems studied in science, which is why they have to be approached from the same perspective as these phenomena.

DeBot et al. (2013) also argued that language develops through the interaction of many factors in a dynamic process and that the emergence of language is actually the result of this interaction rather than based on a single factor. Similarly, Bertin (2013) discussed the notion of language emergence in which language is seen as the result of a learner's interaction with other players in the environment and that this interaction brings about new emergent features of the system.

Ellis (1985) argued that L2 learning is “a complex process involving many interrelated factors” and that it “is not a uniform and predictable phenomenon” (p.4). Complex theories and DST theories adopt both the cognitive view of language learning and the social inter-actionist views. Like the cognitive theory, Freeman (1997) argued that re-structuring is based on feedback for the learner from the input: “The absence of positive evidence in the environment or the explicit provision of negative evidence can help learners adapt their inter-language grammar closer to that of target language users” (p. 152).

Theories of complexity see language development as the result of cognitive processing and social interactions of the agent with his/her environment. They showed that language and all of its features, including grammar, are emergent and complex.

DeBot et al. (2007) suggested that DST is concerned with the change that happens within a system over time as it was discussed in Chapter 3. DST also takes into account cognitive and social factors, which provides a straightforward criticism of the behaviorist

theories about language learning. Grammar, for instance, emerges as the result of the agent's social interactions rather than 'a collection of rules'.

Grammar is regarded as epiphenomenal, a by-product of a communication process. It is not a collection of rules and target forms to be acquired by language learners. Language, or grammar, is not about having; it is about doing: participating in social experiences. (Larsen-Freeman, 2002, p. 42 in DeBot et al. 2007, p. 10)

DeBot et al. (2007) explained that DST "is proposed as a candidate for an overall theory of language development" (p.7). Debot et al. (2013) elaborated on this claim by arguing that there is no single theory that is able to account for all the developmental issues in language acquisition, but there are theories that are compatible with the notion of dynamism and non-linearity of language acquisition, which, together, can give explanation to the process of language development. Debot *et al.* (2013) debated that theories, such as cognitive linguistics, emergentism, connectionist theories, grammaticalization theory, activation theory, and usage-based L1 acquisition "highlight certain aspects of language, language change, language acquisition, or the developmental process, but none of these theories by themselves gives a coherent picture of all these aspects at the same time" (DeBot et al., 2013, p. 209).

The following draws heavily upon DeBot et al. (2013) to show how these theories contribute to the explanation of language development and their connections to DST. Cognitive Linguistic Theory (CLT) sees language as part of human cognition and rejects the idea of its modularity. Language is directly connected to and impacted by human cognition and general processing abilities where the construction of different levels of its production from morpheme to discourse is a reflection of this cognitive conceptualization:

CLT is very much in line with a DST perspective, because of the complete interconnectedness of the subsystems both in the mind and in the linguistic system, and because of the assumed dependency on both internal and external resources, such as perception, cognition, conceptualization, and human interaction (p. 209).

In emergentism, grammar is emergent not because of a human inherited linguistic system, but as a result of interaction and use of an established conventional pattern in a social community and it is subject to change. This dynamic feature of grammar is in line with DST: "The notion of Emergent Grammar is meant to suggest that structure, or regularity, comes out of discourse and is shaped by discourse in an ongoing process.

Grammar is, in this view, simply the name for certain categories of observed repetitions in discourse” (Hopper 1998, p. 156 in DeBot et al. 2013, p. 209).

In the connectionist theory, complex language patterns are also assumed to be emergent. As in the theories of complexity, a minor ‘iteration’ in the system can cause a major one and language complexity can be explained in the same way. Instead of UG constraints, this theory assumes that there is a natural limitation of what is possible in a language.

DeBot et al. (2013) reported that in the activation theory, language learning is also regarded as an iterative process; “the more frequently one hears something, the more easily it is activated, the more frequently it is used and the faster it is learned” (p. 211). They referred to McWhinney’s (2008) model which explains that language development is based on the frequency of the input and that this input can vary in terms of availability, validity, and reliability, especially between L1 and L2. They stated the example of the definite and indefinite articles in the English language, which are highly available. However, if they are not available in L1, their reliability and validity will be weakened.

McWhinney’s unified model (UM) (2008) takes input as the source for learning. It learns by comparing the input, searching for similarities and differences. However, McWhinney’s model emphasizes that in addition to pure frequency, the role of cue availability, validity and reliability helps determine the course of acquisition, which relates to the opacity of patterns (p. 210).

It is the interaction between these varieties of factors in language development that makes the activation theory compatible with DST.

In summary, DeBot et al. (2007) advocated that the L2 development process is “determined by the initial state, the type of carrying capacity of the system, and the resources in both the cognitive system and the environment” (p.13). It can be seen how language learning moved apart from the behaviorist assumptions to the point that it becomes difficult to compare the two views. However, it may be concluded that comprehensible input, meaning, language use, and the interaction between the subsystems of a single system and the different systems involved in a language learning

process are basic conditions for language development and that they were all ignored in the behaviorist theories.

7.9. Summary

In this part, the behaviorist theories of learning, the structuralist view, and the audio-lingual method have been examined. It has been argued that behaviorist learning may result in very limited knowledge of the language; “If learned according to a plan, students will end up with a stock of sentences and patterns that will be of occasional use in conversation” (Krashen, 1980, p. 132). However, in general, it fails to lead to effective language learning. The audio-lingual method hinders students’ language learning and results in a low level of proficiency, which, in turn, discourages learners from using the language on their own or to take responsibility for their learning.

The limitations of the audio-lingual method have been explained through discussing how language learning takes place from the cognitive and socio-constructivist perspectives and the theories of complexity. Language learning is a complex process and development entails social interaction and involves complex cognitive processing. Therefore, it cannot be learnt through habit formation or rote learning and memorization. In the section about memory, we explained how memory works and how language should be processed for proper storage and retrieval. Language cannot be acquired through a description of words within specific structures or the substitution table for pattern practice, as it is the case in structuralism. Language fulfils social tasks that cannot be predictable, and, therefore, cannot be learnt in the framework of ‘stimulus-response’ or memorized pre-fabricated chunks of language whose meaning is not of major importance. If the learner cannot function in the view that s/he is part of a dynamic system with his her own factors interacting with different variables, then it may be assumed that very little language learning can take place and students will find it difficult to learn the language on their own or know how to use this language. As a result, their level of proficiency in the target language will always suffer, they will never depend on themselves or take responsibility of their own learning, and they will never act as independent language users or autonomous language learners.

In conclusion, the process of language learning cannot be addressed in drills and rote learning, as in the audio-lingual method. It involves meaning in learning and it is a cognitive process that involves one's awareness of linguistic knowledge, structuring, and re-structuring of old assumptions and modifying them to fit L2 criteria. Errors are part of this process. Language is associated with creativity and complexity rather than mere description of structures and their imitations like in Skinner's analogy. Social interaction and frequency of input help language to emerge.

Holec (1987) defined L2 learning as studying and emphasizes what the learner can do to learn or acquire L2; "language learning refers to the active involvement of an individual in a variety of activities the outcome of which is expected to be the acquisition of the knowledge and know-how which confer competence in the target language" (p.146). In fact, this is the perspective that is accepted towards L2 learning. The learner can acquire L2 better if s/he is actively involved in the process, aware of different strategies, and knows how to use them to fulfill an L2 task. The learner should also be given the opportunity to develop such strategies and skills. This definition of second language learning encapsulates the different theories of learning and language views discussed above, such as the cognitive constructivist approach, the interactionist approach, the affectionist approach, DST as well as the SFL approach. There is also a point here that must be retained and justifies the choice of an alternative approach to ESP teaching, the Problem-Based Learning approach; this argument is that language learning can be incidental. When discussing 'Problem Based Learning as an alternative Methodology', this argument will be revisited.

After this discussion of language views and learning theories, the Theories of Complexity of language learning are adopted and language is considered a complex emergent phenomenon that considers social relationships and is used to convey different meanings in different contexts. Language learning is, therefore, non-systematic. It involves cognitive processing to encode and organize new meaning with old knowledge in the brain, a continuous process of structuring and restructuring based on the provided feedback from the environment and on mediation.

An understanding of language and language learning implies that one should pick up the teaching methodology that allows these practices, including:

2. Student-student interactions;
3. Student-teacher interactions;
4. Students' use and practice of the language in genuine situations;
5. Creativity and autonomy of learners;
6. Allowing errors and giving learners a chance to construct and re-construct their knowledge about L2;
7. Helping learners develop learning strategies;
8. Focusing on form and content;
9. Focusing on content can also lead to incidental language learning;
10. Learning language for a purpose and in context.

Chapter 8: The L2 Learner

Ellis (1999) asserted that “second language learners vary on a number of dimensions to do with personality, motivation, learning style, aptitude and age” (p.99). In the literature, several factors are said to impact a learner’s L2 learning. These can be internal or external. Ellis (1994) argued that the role attributed to these factors is different according to different schools of thoughts:

Behaviorist theories of learning view external factors as of central importance. Mentalist theories, however, emphasize the role played by learner internal factors, crediting learners with language acquisition device. Cognitive theories of language acquisition tend to be interactional in the sense that they emphasize the joint contribution of external and internal factors (p.24).

This study sought to determine ways to empower the learners with autonomy and examine the associated strategies that can enable them to become effective in their L2 learning. This is in line with the general move towards learner centeredness in teaching. Rubin (1987) argued that within the move from teacher-centered to learner-centered approaches “there is growing interest in defining how learners can take charge of their own learning and in clarifying how teachers can help students become more autonomous” (p.15). To do so, what it means to be an effective language learner should first be defined.

8.1. The effective language learner

Long (2005) saw language learners as “far more active and cognitively-independent participants in the acquisition process than is assumed by the erroneous belief that what you teach is what they learn, and when you teach it is when they learn it” (p.12). Thompson (1987) suggested that “the secret of the successful language learner studied by Abraham and Vann was his ability to choose strategies that were appropriate to the acquisition of the language skills necessary to function in a college” (p.41). In learner-centered approaches, language learning effectiveness has been associated with autonomous and responsible learning involving planning, taking responsibility, monitoring and developing total independence (Ellis, 1999; Long, 2005; Richards & Rodgers, 1987). Holec (1987) described effective language learners as those “who are

capable of assuming the role of manager in their learning. They know how to make all the decisions involved. In other words, they know how to learn” (p. 147). All these features are related to autonomy, as discussed in Section 8.3.2.

Johnson and Paulston (1976) spell out learner roles in an individualized approach to language learning in the following terms: (a) Learners plan their own learning program and thus ultimately assume responsibility for what they do in the classroom. (b) Learners monitor and evaluate their own progress. (c) Learners are members of a group and learn by interacting with others. (d) Learners tutor other learners. (e) Learners learn from the teacher, from other students, and from other teaching sources (Richards and Rodgers, 1987, p. 44).

According to Curran (1976), the learner has to develop total independence or autonomy through five stages as one grows from embryo to adulthood. For Ellis (1999), a good language learner is someone who is motivated and flexible, is able to interact in a group, owns analytic skills, seeks opportunity to use the language meaningfully, and takes risks:

- 1- Be able to respond to the group dynamics of the learning situation so as not to develop negative anxiety and inhibitions;
- 2- Seek out all opportunities to use the target language;
- 3- Make maximum use of the opportunities afforded to practise listening to and responding to speech in the L2 addressed to him and to others- this will involve attending to meaning rather than to form;
- 4- Supplement the learning that derives from direct contact with speakers of the L2 with learning derived from the use of study techniques (such as making vocabulary lists)- this is likely to involve attention to form;
- 5- Be an adolescent or an adult rather than a young child, at least as far as the early stages of grammatical development are concerned;
- 6- Possess sufficient analytic skills to perceive, categorize, and store the linguistic features of the L2, and also to monitor errors;
- 7- Possess a strong reason for learning the L2 (which may reflect an integrative or an instrumental motivation) and also develop a strong ‘task motivation’ (ie respond positively to the learning tasks chosen or provided);
- 8- Be prepared to experiment by taking risks, even if this makes the learner appear foolish;
- 9- Be capable of adapting to different learning conditions (p. 122).

This view of an effective language learner is shared in this study and the intention is to find a way through the implementation of PBL to change the students’ attitude and empower them with the right strategies to achieve this purpose. In the next section, learner strategies will be discussed.

8.2. Learner Strategies

Chamot (1987) presented three categories of learning strategies that have been identified in the second language literature, namely “metacognitive, cognitive or social-affective in nature” (p.72). She elaborated on the meaning of these strategies, stating that “in Brown and Palinscar’s view, metacognitive strategies involve thinking about the learning process, planning for learning, monitoring of learning while it is taking place, and self-evaluation of learning after the learning activity” (p. 72). Examining the requirements of language learning autonomy to be developed, as described below in Section 8.3.2., it is evident that these metacognitive strategies are the bridge of the learners to autonomy in second language learning and that a learner is said to be autonomous if s/he is able to use these strategies. Chamot (1987) defines cognitive strategies as the strategies that involve direct interaction of the learner with the learned material;

Cognitive strategies involve manipulation or transformation of the material to be learned; in other words, the learner interacts directly with what is to be learned. Cognitive strategies can vary in the amount of learner interaction or transformation involved; greater involvement is thought to result in increased learning (p.72).

The third type of strategies are the social-affective strategies, which have been associated with cooperative learning (Chamot, 1987). The author argued that learners perform better when they work cooperatively. Oxford (2002) suggested that these strategies help learners remain motivated and work actively;

Some non-L2 strategy research has concentrated on the emotional and social side of learning. Results show that a number of the best learners use affective and social side of learning. Results show that a number of the best learners use affective and social strategies to control their emotions, to stay motivated, to cooperate and to get help (p. 125).

Oxford (2002) also explained that all these strategies help the L2 learner in one way or another. Therefore, she recommended that they should be enhanced at a broad scale, such as in action research:

Strategy training can help students make effective use of multiple strategies. Metacognitive strategies help students keep themselves on track; cognitive, memory, and compensation strategies provide the necessary intellectual tools; and affective and social strategies offer continuous emotional and interpersonal support. Teacher’s action research on language learning strategies or on strategy training cover this wide array of strategies and should not be limited to just one or two types of techniques (130).

Research that involves these factors showed that certain techniques should be used to enhance different learner strategies and promote L2 learning. Holec (1987) explained that learners should be trained using strategies and made aware of them in L2 learning:

- (1) Inform the students of the value and significance of the strategies you train them to use_ tell them about it and have them experience their value.
- (2) Provide training in both cognitive and metacognitive strategies. Moreover, training in metacognition should include both awareness raising or reflection on the nature of learning and training in the skills necessary to plan, monitor and evaluate learning activities (p. 166).

These strategies are the route to skills such as planning, monitoring, and evaluation, and, eventually, to learner autonomy. A better understanding of L2 teaching techniques that are supposed to enhance learner strategies will be obtained by looking at the following factors: memory, motivation, and autonomy.

8.3. Learner Factors affecting Language Learning:

Memory, Autonomy and Motivation

In this section, three major learner factors that are internal, but also impacted by the learning environment, methods of learning and learning strategies, namely autonomy, motivation, and memory, will be discussed. In this study, the needs analysis showed that (1) students are passive and teacher-dependent and they rely on rote memorization to learn the L2 and (2) teaching methods and materials are monotonous, repetitive, and boring. These problems can be resolved by understanding how memory works and the strategies that can be used to enhance long-term retention of, for instance, vocabulary. Motivation is also a seminal factor with a great impact on both memory and autonomy. Learner autonomy remains the key issue in this study, and, therefore, will be understood, discuss how it may be enhanced and find a remedy for EAMP learners in the institution included in this study.

8.3.1. Memory

8.3.1.1. How Memory works

Taylor and Taylor (1990) explained that memory works through three interacting stages: sensory register, short-term memory, and long-term memory.

- **Sensory Register and Short Term Memory (STM)**

Taylor and Taylor (1990) stated that STM “controls the flow of information to and from the sensory register and long-term memory” (p.21). Tardieu (2008) explained that at an initial stage, information goes to the sensory register that stores unprocessed information for seconds. This information then goes to the STM. The STM has a limited capacity in terms of the number of items it can hold and the time it can hold them. If the items are related and coded meaningfully, STM can hold up to 15 short words, twice as many as the number of unrelated words. Based on the work of Trocmé-Fabre (1987), Tardieu (2008), asserted that STM is enhanced by the frequency of use and mental repetition. On the other hand, it is hampered by interference and similarities in phonetic and semantic categories.

When data is processed actively, STM may be referred to as working memory/ *La mémoire de travail*. For Tardieu (2008; 147), ‘the working memory attempts to encode relevant information into the existing networks of Long-Term-Memory’¹⁵. Randall (2007) stated that “it is the place where information is analyzed and meaning extracted” (p. 17, cited in Bertin et al., 2010, p. 88). With reference to Baddeley and Wilson (2002) Al-Hammadi (2012) reported that “short term memory is often referred to as working memory because it is this component that is used during conscious decision making and problem solving activities” (p.84). She debated that STM is an on-line capacity that analyzes and processes new information and that it is responsible for language development.

In SLA, researchers have focused on short-term rather than long-term memory differences because they think short term memory is more responsible for differences in language development. The reason for this belief is that short-term memory is an on-line capacity for processing and analyzing new information (words, grammatical structures and so on) (p.87).

How do these differences occur? Tardieu (2008) argued that in vocabulary acquisition, for instance, the way a new term is processed will affect how well it can be

¹⁵ “*La mémoire de travail étant celle qui sert d’interface entre le monde et le moi et va chercher à encoder les informations pertinentes dans les réseaux existants de la mémoire à long terme*” (Tardieu, 2008 ; p. 147).

stored in the long term memory. Gaonac'h (2006), cited in Tardieu (2008), stated the conditions that should be met so that a word is properly stored in the long term-memory:

L'acquisition d'un nouvel élément lexical nécessite la constitution en mémoire à long terme d'une représentation stable d'une séquence de sons (représentations phonologique), liée à d'autres types de représentations (sémantiques, syntaxiques, morphosyntaxiques...). On peut supposer que cette séquence de sons fait l'objet, tant qu'elle n'a pas été encore stabilisée à travers une représentation en mémoire à long terme, d'une représentation transitoire (c'est la fonction remplie par la mémoire de travail) qui sert de référence durant la constitution des liens avec les autres représentations. [...] L'enjeu de l'acquisition d'un mot nouveau est donc de relier une représentation transitoire à un ensemble de représentations permanentes (Gaonac'h, 2006; p.121, cited in Tardieu, 2008; pp. 145-146).

To associate this discussion with the context of this study, it is evident why the students lose the information they 'learn' shortly after exams.

- **Long Term Memory**

Taylor and Taylor (1990) stated that long-term memory stores “a practically unlimited amount of relatively permanent knowledge and skills: thousands of words and grammatical rules [...]” (p.21). Tardieu (2008) explained how some factors, such as breaks, different points of view, and a relaxing atmosphere can foster LTM and how other factors, such as identical repetitions, stress, and anxiety can hinder it; “La mémoire à long terme est améliorée par des pauses, des réactivations à des moments favorables, les redondances, la variation de points de vue, un environnement agréable, entravée par répétitions identiques, l'anxiété, le stress, un environnement menaçant » (p. 145). Eventually, it is evident meaningless repetition does not help enhance long-term memory. Instead, students need to negotiate meaning in an anxiety-free atmosphere so that they can retain information efficiently, just like in PBL.

Bertin *et al.* (2010) explained that the process of assimilation and accommodation in cognitive learning can be explained through LTM work and its conceptual store where concepts belonging to L2 from L1 are organized and separated. The authors recommended that this claim should inform task design:

The conceptual store may need reorganizing to accommodate concepts or conceptual organizations foreign to L1 and denativization may be seen as a process of separating what belongs to L2 from the initial L1 formal store that was initially called upon (assimilation) (p. 89).

Another finding related to long-term memory that can be useful is the role of awareness and attention in language learning. According to Carr and Curran, (1994, cited in Al-Hammadi, 2012), “indeed, both cognitive psychology and cognitive science appear to agree that attention to stimuli is needed for long-term memory storage and that little, if any, learning can take place without attention (p. 88). Students need to be focused on what they are doing so that they can learn a language. Taylor (1990) argued that, in long term memory, information is retained according to the level of its processing; the deeper it is processed, the better it is retained:

According to a levels-of-processing view of memory, a stimulus can be processed at different levels of abstraction, such as shallow sensory analysis and deeper semantic interpretation (Craik & Lockhart 1972; Craik and Tulving (1975). For example, one can process the printed word TABLE shallowly for its sound (rhymes with CABLE), or very deeply for its meaning (a piece of furniture or a set of numbers). The deeper the processing, the better the retention of that aspect of the stimulus but the worse the retention of shallower levels (p.22-23).

According to Fenouillet and Tomeh (1998), another factor that can impact effective storage and retrieval of information is motivation:

La récupération de l'information, c'est à dire le rappel en lui-même, est un des points d'étude de la mémoire qui a suscité un nombre important de recherches et qui a donné lieu à de nombreuses théories telle que celle de la mémoire épisodique (Tulving, 1985). Atkinson et Wickens (1971) estiment également que la motivation permet d'augmenter la récupération. Si l'information concernant la valeur de l'item est stockée en même temps que celui-ci, alors le sujet pourra se servir de cette valeur pour chercher en mémoire où se trouvent les items qui lui sont associés (Eysenck, 1983) (p. 40).

8.3.1.2 The Impact of Memory on Learning

In the field of cognitive psychology, Lieury (1992, cited in Roulin, 1998) conducted a longitudinal study at the University of Rennes II, targeting 5th and 6th grade students. His research permitted him to confirm that long-term memory has a deep impact on students' success at school. On the one hand, the findings showed that the students who were able to learn more concepts were the ones who got the best marks in the exam they took. The students who learned a lower range of vocabulary, were much less successful. “On observe une relation directe entre la memorisation des concepts nouveaux et la réussite scolaire” (p. 323), reported Lieury (1992). Like Lieury (1992), in this study it is considered that if vocabulary retention is improved it will impact the students' ability to produce language, whether written or spoken.

On the other hand, Lieury (1992) concluded that memory functioning should be taken into consideration in pedagogical practices.

Enfin l'importance de la mémorisation (que ce soit dans l'encodage d'informations nouvelles ou dans les récupérations des données mémorisées) démontrée dans cette étude souligne que les lois générales de la mémoire (organisation, structuration, forme, etc.) devraient probablement être prise en compte dans la mise en place des pratiques pédagogiques (p. 325).

8.3.1.3. Implications for L2 Learning

The aforementioned memory structure and functions have implications for second language teaching. Thompson (1987) argued that “the ability to understand spoken and written language and to produce it in speaking and writing depends on the ability to recognize and retrieve information stored in memory” (p.43). In fact, the seminal role of memory is translated into the procedures and techniques recommended in, for instance, vocabulary acquisition (Tardieu, 2008; Thompson, 1987) and comprehension of written discourse (Thompson, 1987).

Tardieu (2008) argued that the official documents for ‘AP cycle d’orientation, Classe de Troisième’ reflect Gaonac’h’s (2006) view, discussed above, regarding vocabulary acquisition:

- *L'apprentissage se fait par association : les mots associés à des idées, à des sons, des gestes, des images ou d'autres mots. Les mots sont appris et mémorisés dans le cadre d'un champ sémantique, d'un thème, d'un récit ou dans une situation de communication. L'étude d'antonymes et de synonymes peut être mentionnée ici également.*
- *L'apprentissage se fait par collocation : les mots sont appris dans le cadre d'un énoncé dans l'environnement d'autres mots dont la contigüité dans le discours est possible, probable ou fréquente ; tel nom peut accompagner tel verbe ou tel adjectif, tel adverbe ou telle particule peuvent être associés à tel verbe, etc. [...].*
- *L'apprentissage consiste également à réfléchir sur la morphologie, sur la forme de mots et sur les liens entre forme et sens ; catégories de mots, racine et construction (dérivation, c'est-à-dire par le biais de préfixes ou suffixes par exemple), rapport entre graphie et phonie [...] étymologie, etc. (AP cycle d'orientation, Classe de Troisième, 1998, p.150-151 in Tardieu, 2008, p. 146).*

Although the aforementioned criteria for successful vocabulary learning are related to secondary-school learners, they are not different when we look at the issue at tertiary education and ESP learning in particular. For instance, in line with these arguments, in the field of ESP, Dudley-Evans and St John (1998) suggested various

techniques to teach vocabulary in ESP that can make cognitive processing easier. Specifically, “various techniques have been suggested for storing vocabulary: the use of word association, mnemonic devices [and loci, that is the use of visual images to help remember a word” (p. 76). Nattinger and Carrico (1992) cited in Dudley-Evans and St-John, recommended that vocabulary should be taught in situations, in a semantic, situational, or metaphoric set, and in collocations and lexical phrases. This is because words are not stored individually by the learners, but rather as chunks of language.

Thompson (1987) also reported a number of effective techniques that can help the learner better acquire vocabulary. She argued that both linguistic mnemonics and spatial mnemonics have proved to lead to effective vocabulary acquisition. She also reported that visual methods, such as pictures and visualization, are “more effective than mere repetition” (p. 45). Another memory-enhancing technique she presented was the Physical Response Method; she explained that “subjects who were instructed to pretend that they were doing something [...] remembered the sentence better than those who merely repeated the sentence” (p.45). Thompson (1987) also showed that verbal elaboration methods, such as grouping, the word chain, and the narrative chain, help learners to better store and retrieve vocabulary. She based her argument on findings in psychology:

It is well known in psychology that if the material to be memorized is organized in some fashion, people can use this organization to their benefit. This happens because organized material is easier to store in and retrieve from long-term memory. Organization can be imposed by making the items to be learned fit into a pre-existing framework, or by creating some cognitive framework that would bind the items to be learned into a unit which is structured in some fashion (p.46).

She concluded that research has shown a great degree of effectiveness of these methods. Related to the Narrative Chain, for instance, she reported Bower and Clark’s (1969) experiment, which showed that “subjects who learned 12 lists each consisting of 10 unrelated words by weaving the words into a story remembered seven times as many words as those who studied the words by rote” (p.47). In the NA performed in this study, the students and teachers in the institution typically rely on word lists in vocabulary that are not related in any way (see appendix 3). The NA also showed that students learn and forget. In PBL, however, students learn vocabulary in context and in a meaningful way where they have to defend an argument or compose information in a plan for a purpose, which makes the information organized in the memory similar to that of a chain.

Thompson (1987) also stated other techniques that can enhance memory work, such as Self-Testing, Spatial Practice, and Real-Life Practice. For the latter, she argued that language should be taught in context and this context should mimic, as much as possible, the learners' real use of this language. This would "ensure a greater match between encoding and retrieval conditions"(p.47-48).This argument supports the choice of PBL as a methodology that allows the practice of language in the context of the learner's field and leads to the use of topics to which the learners will be exposed while completing other subjects as part of their studies.

Based on Hatch and Brown's (1995) model of essential steps of ESL vocabulary learning, Al-Hammadi (2012) stated some strategies that can enhance vocabulary learning. These were taken specifically from an analysis done by Brown and Payne (1994), which included "having sources for new words, getting a clear image, learning meaning, making a memory connection, and using the words" (p. 87).

Al-Hammadi (2012) surveyed a number of empirical studies that tested L2 teaching techniques in relation to the role of memory. She reported several conclusions that may be summarized as follows:

- 1- Superficial processing does not help a learner in the right coding of language (Craig, 1972);
- 2- Activation of prior knowledge improves comprehension and contextual guessing helps learners infer the meaning of newly encountered words and their proper acquisition, as "word lists could prohibit students from doing contextual guessing while context training enhances students' success in interpreting the meanings of vocabulary encountered in texts" (Carell 2000) (p.85);
- 3- Presenting background information prior to reading increases comprehension (Hayes & Tierney, 2005);
- 4- Prediction activities enhance overall story understanding when associated with comparing text ideas during reading (Anderson & Pearson, 1990). That is, "making word meanings and relationships visible is another way to involve

students actively in constructing word meaning semantic webs, maps, organizers, or other relational charts not only graphically display attributes of meanings, but provide a memory organizer for later use (McCarville, 2000)” (p. 86).

In a study conducted by Anber (2010) using Oxford’s (1990) Strategies Inventory for Language Learning (SILL), it was shown that surface strategies for language learning, such as rote learning, resulted in weaker learning. It was also found that the strategies often used by students with higher vocabulary sizes are different from those used by students with lower vocabulary sizes. The former students are distinguished by using specific strategies that require more effort and time and lead to effective learning, such as using English in different ways, making summaries, and guessing. However, the latter strategies are differentiated by making less effort when learning and using surface strategies, such as rote learning.

In accordance with these claims, Trocmé-Fabre (1987, cited in Tardieu, 2008; 146) outlined five reasons to explain why students can lose the information they learn, ‘*l’oubli*’, which is the case with the students from the institution included in this study: ‘inadequate perception, deteriorated information, unanalyzed context, inability to connect information to the one existing in the memory network, unrecognized information, and strong emotions’¹⁶.

In the analysis of the textbooks used at the PYHC, grammar and vocabulary in *Fresh Start*, for instance, are taught out of context. In the product approach used in the writing books, it was also explained that students reproduce the model text without much understanding. These factors might explain why the students lose what they learn very shortly after a course finishes.

Another aspect of L2 that has been considered in research and associated with memory is reading comprehension. Thompson (1987) asserted that memory plays a seminal role in reading comprehension:

¹⁶ « Une perception insuffisante ; Une information détériorée, non analysée, “flottante”, dépourvue de contexte ; Une adresse erronée (l’information ne peut pas se connecter à d’autres [...]); Une information non reconnue ; Un choc, une émotion très forte. » (Trocmé- Fabre, 1987, cited in Tardieu, 2008; p. 146).

Thus three major factors are involved in comprehending and storing the information contained in a text: (1) ability to use background knowledge about the content area of the text; (2) ability to recognize and use the rhetorical structure of the text; and (3) ability to use efficient reading strategies (p.50).

Thompson (1987) reported a number of reading strategies that can back up the choice of the foundational type of PBL (see Chapter 11), such as Flow-chart and hierarchical summaries, titles, embedded headings, pre-reading questions, story-specific schema, imagery, and perspective.

However, the exposure of the learners to these strategies without giving them the opportunity to get hold of them and use them on their own will not be as effective as desired. Thompson (1987) concluded that “if we can isolate strategies which contribute uniquely to better recall in L2, we will have won only half of the battle” (p.54). Reading strategies are, therefore, only moderately effective if students are not encouraged to continue using them on their own and are not made aware of them, as “it can only be fully won when learners discover for themselves that certain strategies can enhance their performance, and on the basis of this discovery are willing to continue using these strategies on their own” (p.54).

This final statement leads to the next factor that is said to impact learning in general and L2 learning in particular, namely autonomy. Autonomy in L2 learning is related to learning strategies, to memory, and also motivation. This factor is of seminal importance to this study, as the NA showed that lack of strategies that can result in autonomous language learning is a major issue with the PYHC learners. The aim of this action research is to determine the extent to which PBL meets this need, which is the reason why much of this topic has been devoted to understanding what it means, how it can be reached, and how it can be evaluated.

8.3.2. Autonomy

8.3.2.1. Definitions of Autonomy in the Literature

In language learning, Bocanegra et al. (1999) argued that there is a relatively new shift in the consideration of learner autonomy as a determining factor in language learning success. The authors suggested that this shift can be understood by the change in

the concept of the learner; “Following Holec, it may be further assumed that this shift had its origin in a changing attitude towards the relationship between the individual and society: individuals have come to be seen more and more as producers rather than products of society” (p.7).

Little (1991) argued that autonomy is a capacity that develops with experiential learning. Throughout the literature, autonomy in language learning has always been equated with efficient language learning. It has been associated with students’ ability to work on their own, to assess their work, to take responsibility, to be able to think, to make decisions about their own learning (meta-learning), and to set goals for their learning.

Below is a set of definitions of autonomy and how it can be developed in learners, which helped to develop a comprehensive view of the meaning of autonomy:

- The ability to take charge of one’s own learning (Benson Phil, 2006; p. 3).
- A capacity for detachment, critical reflection, decision making, and independent action (Little, 1991, p.4).
- Autonomy in language learning depends on the development and exercise of a capacity for detachment, critical reflection, decision making and independent action; autonomous learners assume responsibility for determining the purpose, content, rhythm and method of their learning, monitoring its progress and evaluating its outcomes (Little, 2000; p. 69).
- Students who are encouraged to take responsibility for their own work, by being given some control over what, how and when they learn, are more likely to be able to set realistic goals, plan programmes of work, develop strategies for coping with new and unforeseen situations, evaluate and assess their own work and, generally, to learn how to learn from their own successes and failures in ways which will help them to be more efficient learners in the future (McGarry, 1995; p.1).
- No school, or even university, can provide its pupils with all the knowledge and the skills they will need in their active adult lives. It is more important for a young person to have an understanding of himself or herself, an awareness of the environment and its workings, and to have learned how to think and how to learn (Trim, 1988; p. 3).
- Effective learners are capable of identifying the learning objective currently being pursued by the teacher. They know what to learn and how to formulate their own learning objectives [...] and they restructure the teacher's objectives to suit their own changing needs. They are able to select and implement appropriate learning strategies, monitor their use of strategies and change them if necessary, and monitor the effectiveness of their learning. This is what is meant by engaging actively in the learning process: these are the kind of decisions effective learners take about their own learning (Dickinson, 1992; p. 1).
- There is nevertheless broad agreement that autonomous learners understand the purpose of their learning programme, explicitly accept responsibility for their learning, share in the setting of learning goals, take initiatives in planning and

executing learning activities, and regularly review their learning and evaluate its effectiveness (Holec, 1981, in Little, 1991; p. 8).

- Other terms are frequently used to make reference to the autonomy of the language learner: self-management, autogestión, self learning, autodidaxy, self-directed learning, learning on an autonomous basis, individualisation, participation or syllabus negotiation, self-instruction, self-access learning, resource-based learning, learning consciousness, learner-centeredness, learner independence, learning how to learn, co-operative teaching and learning, independent language learning, learner training, or, distance learning (Bocanegra et al. 1999; p. 7).

There is a consensus among these statements that effective language learning requires a minimum of learner autonomy. Most statements also emphasize the role of the educational institution in the development of this learning factor. The students need to be given a chance to use the language, develop the required learning strategies to learn, to know how to do things on their own, and learn how to think and to make decisions. Unless these conditions are met, proper language learning cannot occur. Holec (1987) described the L2 learning process as a management process that involves “the making of the whole range of decisions necessary to plan and carry out a learning program” (p. 146), and, thus, he equated learning with autonomy.

Prince (2009) argued that autonomy is closely linked to self-confidence and the feeling of the learner that s/he is able to carry on a task no matter how new or unfamiliar the learning situation is:

L'autonomie commence par le sentiment général de pouvoir accomplir par soi-même ce que l'on entreprend, sans être déstabilisé par une situation nouvelle. Pour un apprenant confiant, l'espace d'apprentissage que l'on trouve dans un CAL est perçu comme une occasion à saisir, un endroit où cette capacité peut trouver toute son expression (p. 72).

According to Prince (2009), another requirement for autonomy is the ability to control one's learning. When all the choices and boundaries are made by the teacher, there is restriction on the learner's meta-cognitive reflection and opportunities to learn from one's experience; “un apprenant dont les enseignant on contrôlé toute les dimensions du parcours aura du mal a se constituer une base de connaissances métacognitives” (p.74). This leads to a discussion on the notion of Self-Directed Learning.

In other reviews, the term autonomy and Self- Regulated Learning Skills (SRL) or Self-Directed Learning Skills (SDL) have been used interchangeably. Paris and Paris

(2001), for instance, defined SRL as a state in which the learner is independent and responsible:

a state when the learner is autonomous, monitors one's own learning, makes learning goal-oriented and enhances expertise and self-development; As the three words imply, emphasizes autonomy and control by the individual who monitors, directs, and regulates actions towards goals of information acquisition, expanding expertise, and self-improvement (p.89).

8.3.2.2. How to Boost Learner Autonomy

Nunan (1996) suggested that autonomy is not absolute. He explained that there is variation in the extent to which a language learner can be autonomous, depending on several factors like the learner's personality, learning goals, the philosophy of the institution, and learning cultural context. He argued that these factors interact together and determine how much a learner can become autonomous. He also indicated that sometimes learner predisposition to embrace autonomy can be displayed with "systematically incorporating strategy training into the learning process" (p.13) and that autonomy can be fostered regardless what the pre-disposition is.

Nunan (1996) reported that learner autonomy is often associated with learner centeredness and that some researchers further associate it with learner active involvement, the use of authentic materials, and incorporating learning-how strategies. For him, however, this learner centeredness in a curriculum should address the following questions from the learner's perspective: "what will be taught, how it will be taught, when it will be taught and how it will be assessed will be made with reference to the learner" (p. 14). This notion of learners' opinion and participation in material and topic choice was also advocated by Dorneiy (2001) in relation to motivation. This view is echoed in Holec's (1981, cited in Nunan, 1996) definition of autonomy, which is outlined as the ability to take responsibility for one's own learning through goals-setting, making decisions for one's learning, and self-evaluation;

To take charge of one's learning is to have, and to hold the responsibility for all the decisions concerning all aspects of this learning,
i.e. - determining the objectives;
- defining the contents and progressing selecting methods and techniques to be used;
monitoring the procedure of acquisition properly speaking (rhythm, time, place, etc...)
- evaluating what has been acquired (p.3).

Nunan (1996) noted that a learner's view is important because research has shown that there are usually clashes between teachers' teaching preferences and learners' learning preferences. Another point is that learners do not necessarily learn what teachers teach. He illustrates his argument with Silmani's (1992) research findings. Specifically, "Silmani found that topics initiated in the classroom by the learners were much more likely to be nominated as having been learnt than those nominated by the teacher" (p. 19). Nunan (1994) also investigated the role of self-monitoring and self-assessment to foster autonomy in a study he conducted for this purpose. He reached the following conclusions, as summarized below:

1. Learners approach language learning tasks differently and this reflects their desire for autonomy and their abilities to develop it;
2. Learners' autonomy is enhanced when they are involved in productive use of language rather than simply reproducing provided input whether from textbooks or teachers;
3. Autonomy is fostered when learners are allowed to select content and tasks to work with and are given the opportunity to assess their own progress;
4. Giving the learners the opportunity to activate their learning outside the classroom can enhance their autonomy;
5. Autonomy is enhanced when learners find their own learning materials.

These results are very important for this study and provide the basis for hypothesizing that PBL is a teaching methodology, which allows the practice of all the aforementioned strategies to enhance learner language autonomy. The hypothesis is supported by Allwright's (1988, in Benson, 1999) suggestion that autonomy, as a term, has to be "associated with a radical restructuring that involves the rejection of the traditional classroom and the introduction of wholly new ways of working" (p. 28).

This is also in accordance with Tardieu's (2008) arguments regarding the notion of *étayage* and *desétayage* based on Bruner (1983); Meirieu's (1992) as well as Bange's (1996) scaffolding, which consists of two levels guiding the learner to autonomy. Scaffolding, as presented in these works, is a continuous process of pedagogical work in language teaching in which the learner is led to learn and is trained to know how to learn

through methods that build on his/her previous knowledge. Each time the learner achieves a new stage, s/he should be ready to act autonomously without help from the teacher in using the previously acquired knowledge in order to ensure continuous progress.

Il faut étayer le développement d'un sujet, c'est-à-dire, en prenant appui sur les savoirs et savoir-faire qu'il a déjà acquis, prolonger son développement en mettant en place des situations interactives qui lui permettent de progresser ... puis il faut désétayer, c'est-à-dire lui permettre progressivement de se passer de toutes les aides qu'on lui a proposées, d'être suffisamment solide pour que de nouveaux dispositifs puissent s'appuyer sur ce qu'il vient d'acquérir et engager un nouveau progrès (Meirieu, 1992 ; 117-118, in Tardieu, 2008 ; p. 158).

8.2.3.3. Indicators of Language Learning Autonomy

Bertin *et al.* (2010) identified 6 indicators of autonomy in language learning:

1. exploration of learning potentialities,
2. control of the learning process,
3. adequate use of learning routines,
4. management of constraints,
5. management of interdependence,
6. (epistemological) responsibility (p.120).

These indicators reflect the different features of language learning autonomy that have been discussed so far. For this study, a smaller number of indicators were identified, including (1) taking responsibility for one's own learning, (2) critical reflection and/ or decision making, and (3) independent action. Each of these indicators serves to indicate a group of observable behaviors.

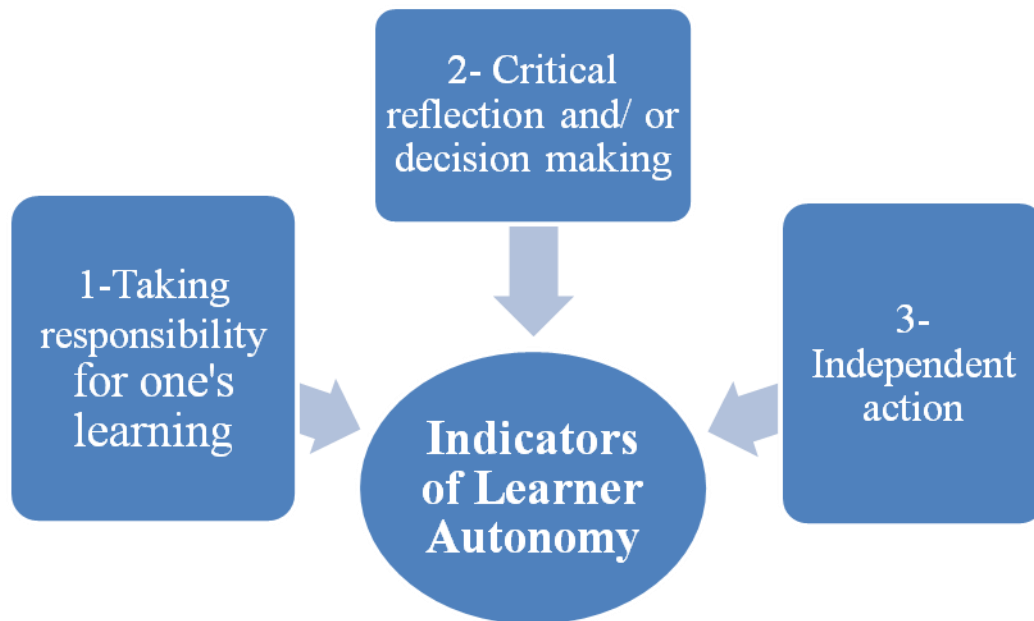


Figure 42. Indicators of learner autonomy identified in the literature

1- Taking responsibility: “It involves planning, selection of materials, monitoring learning progress, and self-assessment” (Holec, 1982, in Benson, 2006, p. 22).

2- Critical thinking and decision making: This involves the know how or metacognition, which is the ability to think on one’s own, criticize and select the proper materials and aids, and find out possible ways to solve problems. This component should also include setting goals, identifying gaps of knowledge to raise students’ awareness about what they already know and what they are supposed to know to fulfill a task.

3- Independent action: Learners’ ability to work on their own, which should include self-reliance, self-instruction beyond the classroom, and the capacity to fulfill a language or learning task independently.

However, it is important to note that the boundaries between these variables are blurred due to their interconnectedness. Therefore, this should be regarded as one possible classification. The identification of these indicators of language learning autonomy helped to construct the research instruments for the empirical phase in this study, including the observation grid, the questionnaires, and the semi-structured interview. The grouping of these indicators into three major variables further helped in

the analysis of the data collected and its reduction into a manageable number of variables. Brown (1995) explained the difference between variables and constructs below:

It is important to distinguish variables from the underlying constructs they represent. Both variables and constructs vary over time or among individuals. However, a variable is essentially what we can observe or quantify of the human characteristics or abilities involved, whereas a construct is the actual characteristic or ability that it represents in human beings (p.8).

Eventually, the following indicators/ variables of autonomy were examined, as stated in Table 4 below.

<ul style="list-style-type: none"> - Ability to fulfil a language task on one's own - Self- reliance - Self- instruction beyond the classroom 	1- Independent action
<ul style="list-style-type: none"> - Planning - Selection of materials - Self-assessment 	2- Taking responsibility
<ul style="list-style-type: none"> - Goal setting - Ability to think on one's own - Identifying gaps of knowledge 	3- Making decisions

Table 4; Indicators of Autonomy Used in the Research Instruments

Despite the fact that these variables are cognitive and difficult to observe, the students' performance on a particular task can be observed. PBL structure helps to do so without major problems, as it involves all these factors in task realization. It may be seen, for instance, if learners managed to put down a plan or not, as in PBL session 1. These variables can be observed throughout the stages of the PBL tutorial, which involve planning, setting goals, identifying gaps of knowledge, researching and selecting materials, self-instruction beyond the classroom, taking responsibility, and self-assessment. Sometimes, however, students may comprehend a text but cannot transfer the information into a summary due to other skills and language ability requirements to do so. Here, interviews and questionnaires become relevant searching tools to gain access to such knowledge and this explains why a variety of research tools have been used to gather the necessary information about learners' autonomy in the empirical stage.

At this stage, the reader is reminded that the results of the needs analysis in Chapter 5 in which it was reported that the students were described as passive and teacher-dependent. The teachers' suggestions for improvement in question 5 of the

interviews confirmed that autonomy is a major need for the students. The discussion about autonomy supports the choice of PBL as an alternative methodology that would allow the learners to use the language in genuine situations, develop self-directed skills, and autonomous learning, as discussed in Chapter 11.

8.3.3. Motivation

In the previous sections, the role of memory and autonomy in language teaching was discussed. In this section, the role of motivation in language learning and its impact on autonomous learning and memory will be addressed. The results from the NA carried out in this study have shown that the teaching materials used within the institution included in this study are monotonous, repetitive, and boring. In contrast, PBL is said to promote learners' motivation and it is good to have some understanding of this learning factor before it is discussed in PBL.

Dörnyei (2001) explained that defining the term motivation is problematic due to its complexity, as theories of motivation in psychology would agree. He defined motivation as the choice of an action, time, and effort spent on it and how much persistence is associated with it:

Perhaps the only thing about motivation most researchers would agree on is that it, by definition, concerns the direction and magnitude of human behaviour that is:

- The choice of a particular action,
- The persistence with it,
- The effort expended on it,
- In other words, motivation is responsible for
- Why people decide to do something,
- How long they are going to sustain the activity,
- How hard they are going to pursue it (p.8).

William and Burden (1997) defined motivation as “a state of cognitive and emotional arousal which leads to a conscious decision to act, and which gives rise to a period of sustained intellectual and/or physical effort in order to attain a previously set goal (or goals)” (p.1). From this statement, motivation is associated with affect and cognition and results in action. It may be concluded that motivated students will cognitively and physically invest themselves to fulfill an objective, while students who lack motivation will not show interest, nor will perform actions. Dörnyei and Otto (1998) provided an insightful definition of ‘L2 motivation’:

In a general sense, motivation can be defined as the dynamically changing cumulative arousal in a person that initiates, directs, coordinates, amplifies, terminates, and evaluates the cognitive and motor processes whereby initial wishes and desires are selected, prioritized, and successfully or unsuccessfully acted out (p. 65).

The aforementioned definition shows how seminal motivation is in L2 learning. Motivation directs learners' motor processors and enables them to proceed further with an action, and, therefore, determines learners' success. This view is echoed by Ellis (1985, 1997 and 2003) who advanced the claim that learners' success in language learning is highly determined by students' motivation:

A full explanation of the role played by motivation and needs requires an account of how these affect the process of learning: Such an explanation has been provided by Dulay and Burt (1977). They propose that the learner has a 'socio-affective filter' which governs how much of the input gets through to the language processing mechanisms. As a result of conscious or unconscious motives or needs, attitudes or emotional states, the learner is 'open' or 'closed to the L2 (Ellis 1985, p.11).

Ellis (1985) noted that "learners who are highly motivated are more likely to seek out instruction (or more instruction) than learners who are not highly motivated" (p. 227).

Motivation is also related to a number of components. Walker and Simon (1997, in Dörnyei, 2001) reviewed the leading theories on human motivation, showing that, in doing this, five factors determine the degree of human motivation:

Human motivation is at its highest when people

- are competent
- have sufficient autonomy
- set worthwhile goals
- get feedback
- are affirmed by others (p.9)

This statement highlights other issues that can enhance motivation, such as the learner's level of proficiency; if learners are competent (i.e., learners have the required proficiency to perform a task), they will not feel frustrated. Motivation can take place if the learners feel that they have a meaningful goal that they want to reach. They are also motivated if they receive affirmation and positive feedback from a coach. Motivation is also associated with autonomous learning, which involves the ability to work independently and to be able to perform a task. Regarding autonomy, some researchers studied the impact of autonomy on motivation, for instance, and validated this claim.

Dörnyei (2001) recommended that motivation should be ‘maintained and protected’ in order to ensure a positive learning environment through several strategies;

Although the spectrum of executive motivational strategies is broad [...], five areas appear to be particularly relevant for classroom application:

- Setting ‘proximal subgoals’
- Improving the quality of the learning experience
- Increasing the learner’s self-confidence
- Creating learner autonomy
- Promoting self-motivating learner strategies (p.128).

Dörnyei (2001) elaborated on these strategies by explaining that when students are allowed to set their own learning goals, they feel that they have control over their own learning. He supported this claim by discussing Locke and Latham’s (1990) goal-setting theory in which the characteristics of these goals have been specified. Goals should be clear, specific, challenging, and both short- and long-term. Dörnyei (2001) argued that this is particularly effective in L2 learning. In relation to the second point on the quality of learning experience, the author suggests that classroom tasks have to be interesting and challenging and should be able to enhance ‘*learner’s self-image*’. The learner’s self-image can be maintained and enhanced in several ways through the choice of tasks and roles that can keep this image and avoidance of “criticism and corrections that can be humiliating” (p.129). Increasing the learner’s self-confidence is another major strategy with major effects on the learner. This can be achieved through reassuring the learner that competence is subject to change and development, decreasing their fears and making them believe that they can do things, as well as encouraging them through positive reinforcement. The fourth strategy to enhance motivation is to create learner autonomy. Dörnyei (2001) emphasized the impact of autonomy on motivation and on learning. He suggested the implementation of well-thought methodologies that can allow autonomous learning practices, such as:

- Resource-based approaches (emphasising independent interaction with learning materials);
- Technology-based approaches (emphasising independent interaction with educational technologies);
- Learner-based approaches (emphasising the direct production of behavioral and psychological changes in the learner, eg. Strategy training);
- Classroom-based approaches (emphasising changes in the relationship between learners and teachers in the classroom and learner control over the planning and evaluation of learning);
- Curriculum-based approaches (extending the idea of control over the planning and evaluation of learning to the curriculum as a whole) (p131).

However, a comment should be added on the last point in the statement above. That is, learners' evaluation of the curriculum has to be seriously taken and has to feed the new choices of teaching materials. In PYHC, for instance, a Quality Assurance Unit was started last year (i.e., 2014-2015) and the learners are now asked to complete questionnaires and evaluate the curriculum. This is a step to be praised, but so far no fundamental changes took place regarding the used textbooks and teaching materials. It should be noted that all the arguments presented by Dörnyei (2001) gave additional theoretical support for the choice of PBL to enhance the learning autonomy of the EAMP learners in the context of this study.

In another review of educational psychology on self-directed skills, Paris and Paris (2001) demonstrated how motivation and affect impact autonomy and self-directed learning skills or self-regulated learning (SRL). To these authors, the learner will take action and show autonomous behavior only when s/he is motivated to do so:

SRL depends on motivation and control as well. Students need to be motivated to exert effort, to persist in the face of difficulty, to set attainable yet challenging goals, and to feel self-efficacy with their own accomplishments. They need the volitional control to avoid distractions and stay on track (Corno, 1993). They also benefit from using emotion control, such as reassuring self-speech, to limit anxiety about task-difficulty (Kuhl, 1984). It is the fusing of skill and will (and dare we add "thrill"?) to emphasize that cognition, motivation and affect are involved in SRL (p.89).

Paris and Paris (2001) claimed that students who lose focus in class often forget to do their homework and often do not complete their work lack SRL; "Students who daydream, forget assignments, and rarely complete their work, display little SRL" (p. 93). However, William and Burden's (1997) definition of motivation above is examined, a lack of motivation can lead a learner to lose interest and avoid performing a requested task. This makes it difficult to define SRL as separate human behavior. SRL and motivation are highly inter-related and one cannot look at one of them without considering the other.

Fenouillet and Tomeh (1998) reviewed research material in the field of cognitive psychology to determine the impact of motivation on short-term memory and long-term memory, concluding that motivation impacts short-term memory through attention while it impacts the long term-memory through the process of organization.

Prince (2009) also stated the impact of motivation on autonomy, noting that “a fully autonomous learner is generally motivated, but not all learners want to be autonomous. The question of autonomy is crucial to a Language Centre, where learner’s motivation needs to be maintained as they are guided on the path to autonomy” (p. 71).

8.4. Summary

In this chapter, we explained that L2 learners develop their language proficiency differently for many reasons. The learner emerges as a complex system with factors which are impacted by his/ her learning environment and which in turn impact his/her L2 learning. All these factors can determine the effectiveness of L2 learners’ learning. We contended that the effective language learner has to develop the strategies that can help him/her grow independently. This can be impeded by internal factors like the learner’s attitude and motivation. They can also be facilitated by effective pedagogic practices, such as teaching techniques and strategies that enhance memory work; increase motivation; and enable the learner to become independent. For example, *étayage* and *désétayage*, are techniques which guide the learners to learn and know how to learn. We considered the importance of learners’ strategies for learning and how they can be activated and developed. We considered psychological factors which interfere with the L2 learner’s learning such as memory, motivation and autonomy and explained that these are also inter-related and they impact one another. As this study seeks to examine the learners’ behaviors which will determine whether they managed to develop independence, a number of indicators of learning autonomy have been identified.

It was concluded that efficient language learning takes place when learners’ cognitive processors are activated, memory strategies are taught and reinforced, the learner’s affect is taken into consideration, and s/he is using the language meaningfully, interacting with others, and developing the right strategies to become autonomous and independent.

Chapter 9: The Teacher

9.1. The Teacher in Action-Based Learning

The teacher has been presented as a major component of L2 learning in several models, such as those discussed in Chapter 2 (e.g., Stern's (1991) model and Bertin's (2013) model). It is important to note that the teacher's view has been shaped, changed, and affected by different teaching methodologies from a knowledge provider, including teacher-centered approaches, a facilitator perspective, and action-based learning. In this study, interest is not in reporting all these views, but rather focusing on the view that is compatible with the context in this study, action-based learning. Actually, Dörnyei (2001) suggested the achievement of learner's autonomy and motivation is impossible without a teacher who has the necessary knowledge, belief, and attitude to provide an effective learning atmosphere:

Teachers play a significant role in socializing and shaping the motivation of their students through their

- personal characteristics
- verbal and non-verbal 'immediacy' behavior
- active motivational socialising behavior
- classroom management practices.

Indeed, almost everything a teacher does in the classroom has a motivational influence on students, which makes teacher behavior a powerful 'motivational tool' (p. 120).

In line with this view, Holec (1987) stated that a change in the learner's role as a manager of his/her learning entails a change in the roles attributed to the teacher;

Teachers become, in the learner's mind experienced language and language-learning resource persons whose function is to facilitate the learning process. It is their role to give advice, provide explanations, help find suitable materials, suggest procedures, and pass on information coming from other learners. Teachers are no longer seen as someone to obey, as a pilot to trust blindly. Rather, they are viewed as someone who can help find answers to questions one asks oneself, who can lighten some of the tasks learning involve and, generally, who serves as an informed interlocutor available when needed (p.153).

Eventually, the teacher takes up new roles; s/he becomes a mediator and a facilitator of learning, and, thus, is unusually called a tutor. In the same direction, Bertin

et al. (2010) present a list of these roles based on Demaizière’s (2003) and White’s (2003) research;

- selecting course content and methodology in relation to the curriculum and objectives;
- selecting when and how to intervene (proactively or reactively)
- deciding the nature of content (linear, flexible, fluid, provided by learner);
- managing the resources;
- selecting learning experiences that enhance confidence and expand learning options (discovery approaches, problem-solving activities, TBLT, collaborative work, etc.);
- providing supportive feedback (constructive judgments and evaluations);
- encouraging risk-taking and opportunities for learners to communicate about learning with others;
- facilitating group bonding, in order ‘to increase interaction and peer mediation;
- ensuring that learning is meaningful, socially based and coherent with the expected outcomes;
- suggesting further activities (p.130).

The other roles ensured by the tutor, as explained by Bertin *et al.* (2010) are mediation and scaffolding (see Figure 43). Although Bertin *et al.* (2010) defined these roles in relation to distant-language learning, the general meaning is still applicable to face-to-face teaching in self-directed learning. Bertin *et al.* (2010) defined mediation as “the process of interaction between the tutor (whether it is human or machine) and the learner” (p.131). This process involves the provision of help to the learner to know how to perform a task. The authors also differentiated between the terms follow up and feedback in scaffolding. They defined follow up as “the way in which the tutor analyses what has been tracked and derives plans for what will follow” and feedback as “the tutor’s response to learner activity” (p.131).

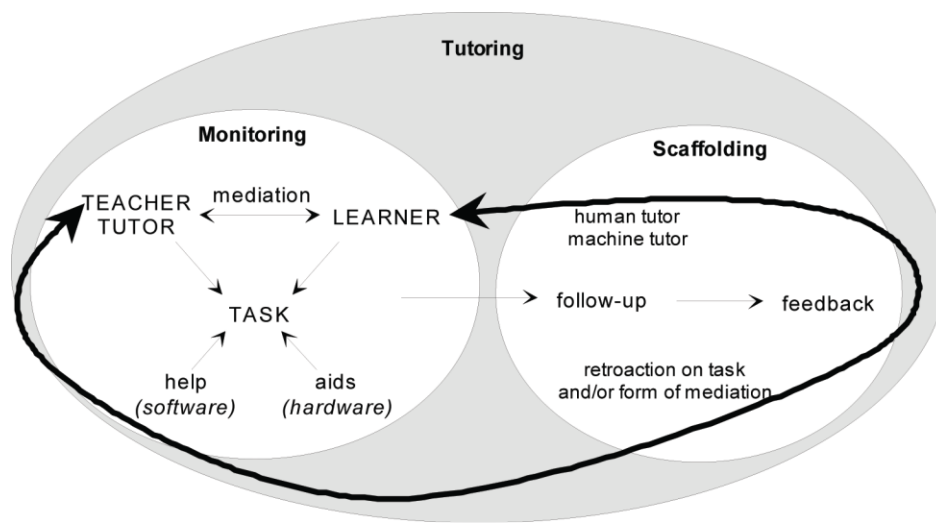


Figure 43: Monitoring and related concepts (p. 131) Bertin *et al.* 2010

9.2. The Teacher's Posture

In terms of styles, whether in general English or ESP, every teacher develops a style or a posture that is impacted by personal as well as extraneous factors and will certainly impact one's teaching and selection of methods. Based on Dubet and Martucelli (1996) Narcy-Combes J.P. (2003) discussed teachers' teaching postures, their origins, and their consequences to the learning teaching environment, and the learner. He presented a teacher's taxonomy as we can see in the table below.

Deep motivation	Posture	Consequences	Language teaching options
Narcissism	A. Transmission of knowledge	Expects the learner to mirror his or her own qualities.	Linear content, Mastery orientation, Demanding objectives. Transmissive approach.
Need for power /security	B. Organizing and directing role	Expects learners to need rules and pre-defined programs.	Linear content, Mastery orientation, Planned and centralized systems. Cognitive approach.
Need for socio-affective recognition	C. Facilitative role	Tutored self-directed learning Learning to learn	Learner support, A measure of learner empowerment, A limited form of planning, Socio-cognitive/ cultural approach.
Counter-dependence	D. Refusal to teach	Total authenticity Total autonomy	Flexible environments, No planned content, Learner as course designer, Learner collects own materials. Sociocultural approach/no approach.
Other postures may exist, and postures may not be so rigid			

Table 5; Teacher Posture Bertin et al.; 2010; p 134

As the last cell in the table indicates, other postures might exist due to a combination of more than one type. Narcy-Combes J-P (2010) in Bertin *et al.*, (2010) elaborated on the origins of these postures as follows:

Research results (Barbot et Camatarri, 1999) indicate that postures result from a slow construction and are due to a multiplicity of factors, which include:

- Individual, personal and cultural conditioning and degree of ethnocentricity;
- training and education (including degree of openness to new ideas and systems)
- status (professional and social);
- values;
- tastes;

- motives;
 - goals;
 - fears;
 - resources;
 - constraints.
- (Bertin et al.; 2010; p 134)

However, no matter the teaching style, there are recommendations to be followed so that L2 teaching is effective. Brown (2002) listed ten principles that teachers should abide by in English language teaching towards achieving a learner-centered approach. These principles involve cognitive, meta-cognitive, and affective learner strategies.

9.3. Ten Principles for an Effective Language Teacher

1. LOWER INHIBITIONS

Play guessing and communication games; do role-plays and skits; sing songs; use group work; laugh with your students; have them share fears in small groups.

2. ENCOURAGE RISK TAKING

Praise students for making sincere efforts to try out language; use fluency exercises where errors are not corrected at that time; give outside-of-class assignments to speak or write or otherwise try out the language.

3. BUILD STUDENTS' SELF-CONFIDENCE

Tell students explicitly (verbally and nonverbally) that you do indeed believe in them; have them make lists of their strengths, of what they know or have accomplished so far in the course.

4. HELP STUDENTS DEVELOP INTRINSIC MOTIVATION

Remind students explicitly about the rewards for learning English; describe (or have students look up) jobs that require English; play down the final examination in favor of helping students to see rewards for themselves beyond the final exam.

5. PROMOTE COOPERATIVE LEARNING

Direct students to share their knowledge; play down competition among students; get your class to think of themselves as a team; do a considerable amount of small-group work.

6. ENCOURAGE STUDENTS TO USE RIGHT-BRAIN PROCESSING

Use movies and tapes in class; have students read passages rapidly; do skimming exercises; do rapid "free writes"; do oral fluency exercises where the object is to get students to talk (or write) a lot without being corrected.

7. PROMOTE AMBIGUITY TOLERANCE

Encourage students to ask you, and each other, questions when they do not understand something; keep your theoretical explanations very simple and brief; deal with just a few rules at a time; occasionally you can resort to translation into a native language to clarify a word or meaning.

8. HELP STUDENTS USE THEIR INTUITION

Praise students for good guesses; do not always give explanations of errors – let a correction suffice; correct only selected errors, preferably just those that interfere with learning.

9. GET STUDENTS TO MAKE THEIR MISTAKES WORK FOR THEM

Tape-record students' oral production and get them to identify errors; let students catch and correct each other's errors; do not always give them the correct form; encourage students to make lists of their common errors and to work on them on their own.

10. GET STUDENTS TO SET THEIR OWN GOALS

Explicitly encourage or direct students to go beyond the classroom goals; have them make lists of what they will accomplish on their own in a particular week; get students to make specific time commitments at home to study the language; give "extra credit" work.

Box 1; Ten principled maxims to focus teachers on sound classroom practices (Brown, 2002, p.16-17)

In the previous section, the importance of the enhancement of the learner's strategies in L2 learning was discussed. However, as Brown (2002) argued, principles have to enlighten the teacher who is ready to take up changes and challenges when necessary.

An approach to language pedagogy is not just a set of static principles "set in stone". It is, in fact, a dynamic composite of energies within a teacher that changes (or should change, if one is a growing teacher) with continued experience in learning and teaching (p 11).

According to Brown (2002), a good teacher is a risk-taker, someone who copes with emergent learners' needs, implements innovative methods, and uses feedback to make teaching more effective:

The interaction between one's approach and classroom practice is the key to dynamic teaching. The best teachers are able to take calculated risks in the classroom; as new student needs perceived, innovative pedagogical techniques are attempted, and the follow-up assessment yields an observed judgment on their effectiveness. Initial inspiration for such innovation comes from the approach level. But the feedback that teachers gather from actual implementation then reshapes and modifies their overall understanding of what learning and teaching are- which, in turn, may give rise to a new insight and more innovative possibilities and the cycle continues (p.11).

In fact, this statement also reflects the role of the teacher in action research, as discussed in Chapter 1. It shows how the teacher works at different levels from theory to practice and from practice to theory. It also reflects the view of the teacher that is used in this study.

The view of teacher and learner will be revisited in Chapter 11, which shows how the PBL methodology gives both teachers and learners ample opportunities to change their views and attitudes towards learning and to be effective. However, before tackling PBL, ESP will be discussed to show its relevance as a language (*langue spécialisée*) and as a teaching approach. This will be followed by an indication of why it is desirable to use PBL in the teaching of ESP as a language for a specific purpose.

Chapter 10: English for Specific Purposes

10.1. The Rise of ESP

To better understand the concept of ESP as a special form of language, it is essential to understand how it emerged. Hutchinson and Waters (1987) stated three main reasons that cause ESP to take place: the demands of a brave new world, a revolution in linguistics, and a focus on the learner. The authors suggested that the post second world war era witnessed an international growth in science technology and economy, which led to a crucial need for an international language. Due to various circumstances, including the growth of these fields in the United States, English was sought to be the language of technology and commerce. A new generation of English language learners emerged with specific needs:

But as English became the accepted international language of technology and commerce, it created a new generation of learners who knew specifically why they were learning a language- businessmen and women who wanted to sell their products, mechanics who had to read instruction manuals, doctors who needed to keep up with developments in their field and a whole range of students whose course of study included textbooks and journals only available in English. All these and many others needed English and, most importantly, they knew why they needed it (Hutchinson and Waters, 1987, p.6).

This situation, coupled with the 1970s oil crisis, induced an interest in the oil-rich countries, which was followed by the growth of business in the region and the rise of ESP. In other words, “English suddenly became big business and commercial pressures began to exert an influence. Time and money constraints created a need for cost-effective courses with clearly defined goals” (p.7). This means that the market needs decided the destiny of this new form of English Language Teaching (ELT) namely, ESP.

The second reason for the emergence of ESP, which Hutchinson and Waters (1987) stated, is the revolution in linguistics, and the third reason is the development in educational psychology and the focus on the learner’s needs in different courses of study. By the end of the 1960s, learners’ needs and interests were seen as crucial components to increase learning and motivation.

In an older reference, Drobnic also (1978) stated that ESP was the “outgrowth of large scale, international, political, economic and intellectual processes rather than an

extension of various linguistics-generated English language teaching approaches” (p.1). He concluded that this makes ESP “a view of ELT grounded not in linguistics but in the meeting of specified needs and requirements” (p.2). He argued that the reasons behind the emergence of ESP shaped its major feature, which is meeting the learner’s needs in his/her job. Drobnic (1978) argued that these needs should determine what should be taught to the learner and that without abandoning the teaching knowledge gained from linguistics, ESP teachers and programmers should adjust their “professional self-concept as language teachers to changes in the international equilibrium” (p.3), recognizing the service that the language has to provide to the discipline. This brings more focus to ESP in relation to the target discipline and it brings about the notion of interdisciplinarity that is discussed below.

This introduction about the rise of ESP outlines some of the specificities of the language taught in this field. It also paved the way to tackle key issues in ESP, such as the role of language in association with the discipline it serves, interdisciplinarity, the choice of methodology in ESP, the objectives of an ESP program, the learner’s needs in specific situations, authenticity of the task, the role of the ESP teacher, and the challenges students face.

10.2. ESP and ASP

After this historical overview in the section above, it is easy to understand the meaning that ESP holds. English for Specific Purposes (ESP) has been defined in the English literature as a specific type of language taught for a particular group of learners to be able to function in a specific target situation (Dudley-Evans & St John, 1998; Robinson, 1991; Strevens, 1987). Robinson (1991) argued that ESP is based on three areas of knowledge: language, pedagogy, and the target field of the ESP learner: Essentially, “it is an enterprise involving educating, training and practice and drawing upon three major realms of knowledge: language, pedagogy and the students’/participants’ specialist areas of interest” (p.1). Hutchinson and Waters (1987) associated ESP with a broader meaning and define it as an approach to language teaching for a specific purpose. As already seen in the needs analysis, and, according to Robinson (1991) and Dudley Evans and St John (1998), ESP is classified into EOP and EAP and encompasses occupational and academic meanings in the Anglo-Saxon tradition. Mémet

(2005) commented on the current use of these expressions mentioning that ESP in the Anglo-Saxon tradition is used now to refer to institutional trainings. She also argued that when academic teaching and research are involved, the term EAP is preferred. She concluded that *anglais de spécialité*, as in the French tradition has a broader meaning:

Les expressions utilisées en français et en anglais ne recouvrent pas une réalité identique. Il semble qu'en anglais ESP (English for Special Purposes, en britannique, et English for Specific Purposes dans les cercles américains) évoque maintenant plutôt l'enseignement dans les établissements de langues privés ou les formations en entreprise ; c'est l'expression English for Academic Purposes, EAP, qui est utilisée pour l'enseignement et la recherche en milieu universitaire. Si l'expression ESP a cours pour la recherche, cette dernière est souvent désignée par les champs spécifiques d'étude comme l'analyse de discours, la linguistique de corpus, la pragmatique, la sociolinguistique ou l'ethnographie. [...]. En revanche, le champ de l'expression « anglais de spécialité » semble plus étendu (pp. 15-16).

This view further considered in more recent works in the French context, such as Sarré and Whyte (2016) who re-defined the meaning of ESP in a comprehensive way. In doing so, they put more emphasis on ESP as a trans-disciplinary field and on its learning/teaching;

1. Learner needs analysis: what is it that students need to learn? What knowledge and skills do they already possess? What particular strengths and weaknesses need to be accommodated? Concerning learner autonomy and informal language learning, to what extent is it possible or desirable for learners to develop language competence outside institutional structures?
2. Domain or content area for ESP: how is the specific purpose defined and delimited? What descriptions are available (corpora, reference works)? What kind of cultural and intercultural awareness is relevant and what intersections with English as a Lingua Franca (ELF) seem to be appropriate?
3. Professional context: what are the habits and conventions of the profession associated with the domain? What are the key activities, competences and expertise of central members of communities of practice (CoP) associated with a given domain? How are they developed, and how can teachers best support this process?
4. Language acquisition: what kind of language competences are expected? Are linguistic, communicative, strategic, and discourse competences equally important? What are the expectations of stakeholders, including learners, teachers, educators, professional colleagues and employers? How are language competences generally assessed and evaluated?
5. Language teaching: what institutional constraints operate on opportunities for language learning and teaching? Who are the teachers available, what kind of background and training do they have? What teaching resources have been developed, what authentic materials are available? Is there a need to develop pedagogical resources? Are particular approaches better suited to ESP teaching than others (e.g., task or project-based teaching and learning)? Are bridges to other educational sectors (e.g., secondary, vocational) relevant? (p. 154).

In this study, the label EAMP refers to the type of English the learners need. This distinction helps to identify the features of the English needed in a specific domain. The

term ‘Academic’ also stresses our focus on the teaching of this type of English. Other distinctions, however, might not be of importance to this study. This study examines methodology used to help the students learn English to help them carry on their studies in medicine. The discussion below seeks to serve this purpose.

10.3. ESP in the Anglo-Saxon Tradition and Interdisciplinarity

This historical overview showed how ESP emerged as a language to serve specific domains and students’ needs. This makes ESP a special form of English which developed some features in common with the target disciplines. In Section 10.2., we emphasized the feature of inter-disciplinarity of ESP. In this section, we will consider different views regarding this aspect in ESP.

Some ESP researchers (e.g., Coffey, 1984; Hutchinson & Waters, 1987; McDonough, 1984) have argued that ESP does not differ in significant ways from any forms of English. It makes more sense to consider its specific aspects and their implications for teaching. These claims, which stress the commonalities of ESP with ELT in general will be considered, and then will be opposed to the view which emphasizes the specificities of ESP as a language of a specific domain. Finally, Newell’s (2001) Theory of Interdisciplinary Studies will be considered. In addition, Hutchinson and Waters (1987) classified ESP as an offshoot of English as a foreign language (EFL) or English as a second language (ESL) as the tree in Figure 44 below depicts.

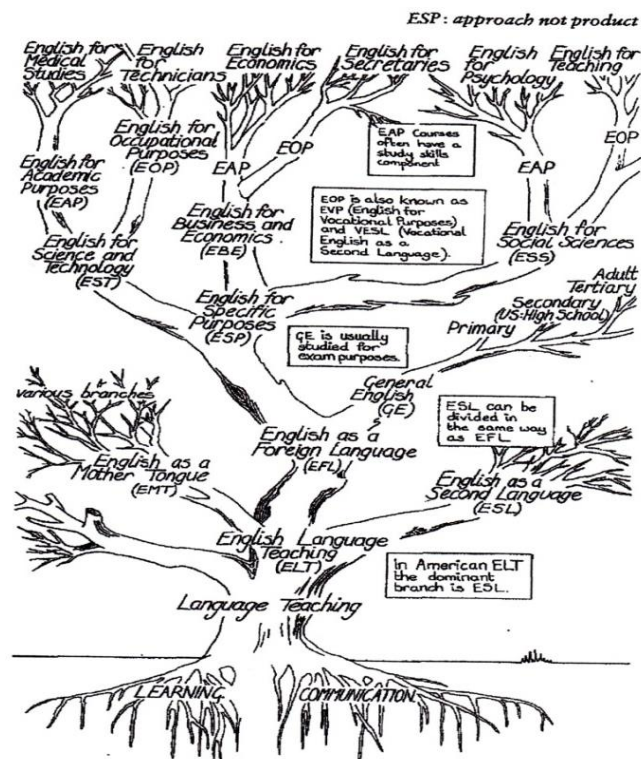


Figure 44: The ELT Tree (Hutchinson and Waters, 1987, p. 17)

This classification also shows how ESP is rooted in English language teaching, and, therefore, it suggests that it should be taught in the same way using the same methodologies. These arguments are better illustrated in Hutchinson and Waters' (1987) definition of ESP:

ESP is not a matter of teaching specialized varieties of English.
 ESP is not just a matter of Science words and grammar for Scientists, Hotel words and grammar for Hotel staff and so on.
 ESP is not different in kind from any other form from language teaching (p. 17- 18)

This view, however, is not restricted to Hutchinson and Waters (1987). McDonough (1984) advanced the claim that ESP "is not a totally separate trend" (p.3). He reported that when the forum, the National Congress on Languages Education (NCLE) in Britain, were asked to investigate areas of overlap between EFL/ESP, ESL, FLT, and MTT, the forum argued that this division or "compartmentalization [was] unnecessary and almost unhealthy for the profession and the school pupils" (p.4-5).

McDonough (1984) claimed that grounded in applied linguistics, ESP shares the same teaching/learning aspects as other types of English. That is, "ESP takes from

Applied Linguistics research into those aspects of the teaching/learning process which are relevant to any particular context” (p.3).

This view can be true to a certain extent. For instance, in terms of teaching methodologies, the use of Task-Based Learning to teach ESP – originally designed for general language teaching – has been cherished and recommended by great figures in the field such as Swales (1990, cited in Verdeil, 2009).

I suggest that we might think of task as: one of a set of differentiated, sequenceable goal directed activities drawing upon a range of cognitive and communicative procedures relatable to the acquisition of pre-genre and genre skills appropriate to a foreseen or emerging socio rhetorical situation (1990, p. 76 in Verdeil, 2009, paragraph 15).

This approach can benefit the teaching of ESP in many ways, as advocated in the above statement. This approach is action-oriented, and, if one considers that ESP also depends on students fulfilling actions, homogeneity emerges, and the implementation of such an approach becomes desirable.

However, confining ESP to the practices of general English teaching and disregarding its specificity can be disadvantageous. In fact, the views held by McDonough (1984) as well as Hutchinson and Waters (1987) have been challenged in theory and in practice. While Hutchinson and Waters (1987) stressed the commonalities of ESP with general English, Dudley-Evans and St John (1998) highlighted the features and specificities that make ESP an outstanding field with its own specific characteristics. Dudley-Evans and St John (1998) argued that ESP does not draw only on applied linguistics, but also on other disciplines for the learning/teaching methods it uses. The authors noted that “we believe that for some of its teaching ESP has developed its own methodology and its research clearly draws on research from various disciplines in addition to applied linguistics” (p.1). Dudley-Evans and St-John recommended the connection of ESP with the learner’s discipline so that it can meet learners’ needs. Stevens (1988, cited in Dudley-Evans and St John) went to the other extreme by stating that ESP contrasts general English and that it has to deal with the language of the target field in terms of syntax, lexis, discourse, semantics, and analysis of this discourse. For Stevens (1988), content also has to be discipline-driven, and, for Dudley-Evans and St-

John teaching methodology has to be oriented to the discipline it serves. The key features of ESP, as stated in Dudley-Evans and St-John (1998), are as follows:

- ESP is defined to meet specific needs of the learner;
- ESP makes use of the underlying methodology and activities of the discipline it serves;
- ESP is centered on the language (grammar, lexis, register), skills, discourse and genres appropriate to these activities (Dudley-Evans and John,1998, p.4-5)

Dudley-Evans and John (1998) explained that to perform related activities, the students need to know the language needed for this purpose, and “a key assumption of ESP is that these activities generate and depend on registers, genres and associated language that students need to be able to manipulate in order to carry out the activity”(p. 4). Dudley-Evans and St John (1998) included other specifications related to the skills required by the discipline, language, skills discourse, and genre. They cited Streven’s (1988), as outlined below:

- designed to meet specified needs of the learner;
- related in content (i.e. in its themes and topics) to particular disciplines, occupations and activities;
- centred on the language appropriate to those activities in syntax, lexis, discourse, semantics, etc., and analysis of this discourse;
- in contrast with General English (Streven,1987, cited in Dudley Evans and St John.1998. p 4).

Robinson (1991) argued that ESP has been interpreted in different parts of the world differently based on language, pedagogy, and content. She argued that the “new” trend is to include content in language teaching;

Continental European studies in ESP, for example, have seemed relatively unconcerned with pedagogy but very active in aspects of language description. The pedagogy of ESP has always been important in Britain and North America, however with Britain taking the lead in matters of syllabus and course design, practitioners in the USA and in Canada leading the way in matters of classroom-based practice and research [...] currently I would suggest, there is a greater interest in the content with which ESP must be involved- the subject matter which ESP students have to study and work with through English. Content-based approaches to language teaching seem to be more discussed now (p.1-2).

CLIL, as an approach to teaching language and content, shows the importance of the discipline while learning the language, and it has been cherished by many researchers. For instance, Wolff (1995) advanced the claim that integration of subject and language as opposed to isolation ‘doubles’ the learning time of the language and allows the

introduction of more foreign languages in the program. Specifically, Zytadib, Rumlich, and Gum (2012) reported positive results regarding the learning of CLIL students over the non-CLIL learners in the German context. In a project in Spain, Manso (2008) also reported that students enjoyed the CLIL program. Although Taillefer (2004) admitted that there are risks and linguistic challenges, she is positive about the CLIL approach. It may be argued that problem-based learning, as a methodology, can bring content and language together in a natural way of learning, which relates back to the purpose of this study.

In terms of interdisciplinarity, Dudley Evans and St-John (1998) concluded that ESP is not only open to other disciplines, but research in ESP has started to influence other disciplines:

The influence is not only in one direction, however. ESP research is beginning to have its influence in other disciplines. Many findings of the genre analysis have been taken on board by those working on L1 writing or composition research (for example Bazerman, 1988; Myers, 1989, both of whom have also had an influence on ESP), and the research into rhetoric of different disciplines (for example McCloskey, 1994 on economics) has been strengthened through contact with applied linguists, especially those interested in genre (p.18).

10.4. ASP in the French Tradition (l'anglais de spécialité) and Interdisciplinarity

Petit (2002, cited by both Mémet (2005) and Détourbe (2012) defined *l'anglais de spécialité* in a broad sense, as 'the branch of English studies dealing with language, discourse and culture of professional communities and specialized Anglophone social groups as well as the teaching of this object' (translated, Petit, 2002, p. 2-3 in Détourbe, 2012, p. 7)¹⁷.

¹⁷ « *L'anglais de spécialité est la branche de l'anglistique qui traite de la langue, du discours et de la culture des communautés professionnelles et groupes sociaux spécialisés anglophones et de l'enseignement de cet objet* » (Petit, 2002, p. 2-3 in Détourbe, 2012, p.

In addition, the definition above sheds light on the specificity and interdisciplinarity of ESP. In line with this, Mémet (2005) cited several definitions that capture and highlight the specificity of this language in her article, “*Aspects de la recherche en anglais de spécialité en France*”. This orientation is seen, for instance, in Bernd Spillner’s (1982) definition of ESP:

Par « langue de spécialité » nous entendons l'ensemble des éléments linguistiques qui peuvent se manifester, dans une situation donnée, lors de la communication entre des spécialistes d'une discipline scientifique ou technique sur un sujet de leur discipline (Bernd Spillner's 1982, p. 19 cited in Mémet, 2005, p. 3).

Therefore, the French tradition seems to be more in favor of the notion of interdisciplinarianism. Bordet (2013) explained that ESP, as an approach, leads to the recognition of its association with the discourse of the community of another domain:

La raison d'être de l'approche de la langue par le biais du spécialisé est l'affirmation de l'existence, à côté et à partir de la langue générale, de discours dont la caractéristique est d'être l'apanage de communautés définies par un savoir, un métier, des connaissances communes. Ces savoirs partagés donnent naissance à un usage spécifique de la langue générale et à une terminologie adaptée à des besoins de communication particuliers (Percebois 2006 ; p.98).

This is how ESP gains the feature of its specificity. Resche (2001) used the word ‘*continuum*’ to refer to the interconnectedness between ESP and the domain/s it is associated with, and the difficulty of looking at ESP as only a type of general English.

C'est précisément parce [que la langue de spécialité] est distincte de la langue générale, sans en être coupée, et qu'il existe bien une frontière discernable. On parle de textes spécialisés, de communautés de spécialistes, de discours propre à tel ou tel groupe, ce qui prouve bien que l'on peut identifier un certain nombre de particularités constitutives de telle ou telle langue spécialisée (pp. 37-38).

This claim is supported by looking at the foundations established for this purpose in France and the work they have done so far, despite the fact that ESP is a more recent field of study compared to the Anglo-Saxon world. Fries-Verdeil (2009) stated that *l'APLIUT (Association des professeurs de langues des Instituts universitaires de technologie)* and *GERAS (Groupe d'étude et de recherche en anglais de spécialité)* were established about thirty years ago:

Pendant ces trente ans, la communauté des enseignants en anglais de spécialité a développé une expertise en anglais économique, juridique, médical, scientifique... Elle a également affiné la terminologie de nombreux domaines techniques, en

particulier par la publication de dictionnaires spécialisés et la relecture d'articles scientifiques en anglais. Elle a enfin su développer une quatrième branche des études anglaises, au côté de la littérature, de la civilisation et de la linguistique, en créant des équipes de recherche en anglais de spécialité, en organisant des colloques et en développant des publications spécialisées (p.106).

Research in ESP in France has continued to be active and has recently seen the emergence of a new group of research in this field *DidASP* for *Didactique et anglais de spécialité* which managed to re-shape research objectives in ESP through looking into other aspects of this construct. Sarré and Whyte (2016) defined the objectives of this research body as follows;

The ESP didactics SIG (*DidASP* for *Didactique et anglais de spécialité*) is somewhat different, focusing on cross-disciplinary concerns and questioning teaching and learning practices to identify characteristics specific to these learning and teaching situations and which can inform the epistemological foundations of language didactics (p.151).

Similarly, Faure (2012), in the context of teaching English for Medical Purposes (EMP), called for the integration of language, content and the methods of the target field as part of transdisciplinarity;

But we could push the notion of transdisciplinarity further by using not only the content but also adapting some of the pedagogical methods used in medical education such as problem based learning (PBL) and teaching styles such as the traditional lecture, and even more so by appropriating the language of medicine to offer a renewed vision of English grammar by way of medical metaphors (Faure, 2012; p.1).

To further tackle the issue of cross-disciplinary concerns, we would like to introduce Newell (2001)'s theory, which offers guidelines onto coping with interdisciplinarity within ESP.

10.5. Newell's (2001) Theory of Interdisciplinary Studies and the Notion of Integration

Before concluding this section, it is important to explain why inter-disciplinarianism is useful for this work. According to the definition of language and language learning used in this study, the views held by theories of complexity that consider language teaching as a complex system were adopted. In harmony with this

choice, additional theoretical support is provided by Newell's (2001) Theory of Interdisciplinary Studies. In his theory, he argued that "all interdisciplinarity is, at root, concerned with the behavior of complex systems" (p. 4). He defined a complex system as multi-faceted, but also coherent. Détourbe (2012; par. 21) debated that Newell's theory can provide theoretical groundedness for ESP, in particular, due to its interdisciplinary feature, noting that 'the interdisciplinary model he constructed stems from the complexity of the intended purpose and can provide relevant theoretical basis for research in ASP in several respects'.¹⁸

Newell (2001) advocated that complex systems theory and application has given validation to the steps followed in the interdisciplinary process by interdisciplinarians. Integration, however, remains mystifying and only complex theories have the potential to help realize interdisciplinary integration.

With the remaining steps, however, we enter the portion of the interdisciplinary process that has always been something of a mystery, namely integration. Most of us can point to examples (probably only a few) of successful interdisciplinary integration; we may even have experienced it ourselves. But no one I have talked to or read (including my own writings) has been able to explain clearly how to integrate disciplinary insights into a comprehensive understanding. We are not even clear on exactly what is meant by integration (Newell, 1998, pp. 547-550). I believe complex systems theory holds the potential not only for validating the remaining steps in the interdisciplinary process, but also for assisting us in conceptualizing and evaluating interdisciplinary integration. As a result, I believe the theory can help us become better interdisciplinarians (pp. 18-19).

Newell (2001) concluded that the best proof of the success of integration results from testing and that "better integration produces more accurate or complete understanding and makes more effective action possible" (p. 22). However, testing is not without difficulties. The reason is that empirical validation is based on "linear, pre-complex systems world in which effects are proportionate to causes" (p.22). Newell (2001) provided a reminder that complex systems are non-linear, as it was argued in Chapter 2. Interdisciplinarianism is also a feature of language didactics; Bertin (2000) described the situation of the researcher in language didactics as standing in a cross-road:

¹⁸ « Le modèle d'interdisciplinarité qu'il construit découle donc de la complexité de l'objet envisagé et il peut fournir un ancrage théorique pertinent pour la recherche en ASP à plusieurs égards » (Détourbe, 2012; paragraph 21).

Pour autant, le problème du chercheur en ergonomie didactique tient à son absence de qualification spécifique dans les sciences qu'il convoque : ni essentiellement didacticien, linguiste ou technicien, il se situe à la croisée de chemins différents dont il doit s'inspirer pour tracer une voie originale (p. 27).

However, this situation is the source for innovation and originality. Bertin (2012) argued that language didactics is in favor of interdisciplinarianism when other domains help understand the phenomenon under investigation:

La didactique sollicite et met en synergie les diverses disciplines scientifiques nécessaires à la compréhension du phénomène étudié. Globalement, comme il s'agit de comprendre les mécanismes d'acquisition ou de non acquisition de l'anglais, elle s'intéresse aux disciplines qui rendent compte des savoirs, des discours, des comportements, des interactions entre acteurs, de la technologie et de sa place dans la classe de langues, etc.

Cependant, elle se donne aussi pour visée de créer ses propres modèles et ses propres méthodes adaptées aux questions posées (Commission Formations SAES, 2011; slide 4).

In his model of didactic ergonomics, Bertin (2011) explained that from an ergonomic perspective, integration of components of a system into a local situation is possible. These arguments back up the choice to implement PBL in the teaching of English for Medical Academic Purposes (EMAP). This is a good example where disciplines can meet and interact in a coherent way.

In Chapter 11, the epistemological bases of PBL will be examined in order to understand the characteristics it shares with language teaching for specific purposes that make it eligible for such integration. The advantages that this approach can bring to ESP learning will also be presented; Newell (2001) stated two conditions that make integration possible: (1) a thorough study of the phenomenon to be integrated and (2) its homogeneity with the constructed system's components. In this study, it will be shown how PBL is homogeneous and compatible with ESP teaching:

The task of interdisciplinary integration involves two interrelated challenges: recognizing the overall behavioral pattern of the phenomenon being studied, and constructing a complex system whose pattern of behavior is consistent with that of the phenomenon while it emerges from its constituent components, relationships, and sub-systems (p.20).

In line with Newell's (2001) theory, Morin (1994) discussed the openness of scientific disciplines on each other. He used the term associated with migration, '*migrations interdisciplinaires*', to address the issue of the transfer of ideas from one discipline to another.

On peut néanmoins dire très rapidement que l'histoire des sciences n'est pas seulement celle de la constitution et de la prolifération des disciplines, mais en même temps celle de ruptures des frontières disciplinaires, d'empiétements d'un problème d'une discipline sur une autre, de circulation de concepts, de formation de disciplines hybrides qui vont finir par s'autonomiser ; enfin c'est aussi l'histoire de la formation de complexes où différentes disciplines vont s'agréger en s'agglutiner. Autrement dit, si l'histoire officielle de la science est celle de la disciplinarité, une autre histoire liée et inséparable, est celle des inter-trans-poly-disciplinarités (paragraph 4).

This gives further theoretical back up for the integration of PBL into English language teaching for Specific Purposes. The integration of teaching methodologies from other disciplines into the teaching of ESP is not a new practice, though. Two examples, as stated by Dudley-Evans and St John (1998), are the integration of case studies and project work. Unlike problem-based learning, case studies follow three steps: data input, data processing, and output presentation. Dudley and St John (1998) defined them as follows:

[Case studies] are a feature of many professional courses such as business, law, engineering and medicine. Their purpose is to present students with some aspect of a real-life scenario, through which they can apply and integrate knowledge, skills, theory and experience. The role of case studies varies from one profession to another...in medicine, case conferences can take the form of an enquiry as to whether there is anything else that can be done (p. 192).

Dudley-Evans and St John (1998) suggested that this practice is advantageous to ESP teaching, as it promotes cognitive learning. In particular, “one specific way in which cognitive learning processes can be harnessed is through the methodologies of other disciplines. A strength of ESP methodology is the way in which language learning and subject learning approaches can be integrated” (p.192). ESP language teaching can eventually be seen as interdisciplinary. As discussed earlier, Strevens (1998) argued that ESP has to deliver the topics and content as well as the language of the target discipline and Dudley-Evans and S-John claimed that ESP has to follow the methodology of the discipline it serves. Petit’s (2002) definition, stated above, also stressed this feature of ESP. This can also be seen in the history of ESP teaching and the approaches that have been applied in teaching it. Below is a discussion of these approaches and how they integrate knowledge from the target domain. In terms of compatibility, Wood and Head (2004) argued that PBL is a context-based approach that provides an adequate environment for EAP teaching:

PBL is thus a context-based approach (Albanese, 2000; Colliver, 2000), which treats learning in a contextual holistic fashion, synthetic rather than analytic, in terms that will be more familiar to EAP practitioners. In terms of learning theory, it can be seen

to be student- rather than subject- centered (Maudsley, 1999a, 1999b) enquiry-based and interactive involving cooperative learning (p.6).

From the comparison above, PBL is a teaching methodology that has the desired requirements for effective language learning, as is the case with constructivist approaches. In the following section, a short review of teaching methodologies will be considered that have been used in the teaching of ESP over five decades. This will allow a determination of what these approaches offer the ESP learner and provide the basis for showing the other benefits PBL can bring to ESP teaching/learning.

10.6. ESP Learning

ESP learning involves language learning oriented to the learner's field of study. Eventually, two types of knowledge have to be considered: language and the field of study associated with the knowledge.

Hutchinson and Waters (1987) defined second language learning in ESP in the same way it was discussed in Chapter 7. Language learning is '*a developmental process*' in which the language learner makes use of his/her pre-existing knowledge in order to make new input comprehensible. It is an active process that involves decision-making regarding how to connect the new information into 'a meaningful network of knowledge'.

Hutchinson and Waters (1987) further suggested that second language learning is an emotional experience. Students' emotions should be positively oriented towards this process by using group work; providing an anxiety-free context; promoting learner's attitude; as well as variety in teaching materials and methodologies;

using pair and group work to build on existing social relationships; giving students time to think generally avoiding undue pressure; putting less emphasis on the product (the right answer) and more on the process of getting an answer; valuing attitude as much as aptitude and ability; making 'interest', 'fun', 'variety' primary considerations in materials and methodology, rather than just added extras (p.129).

This definition is in line with cognitive, affective, and socio-constructivist theories of learning and is compatible with the perspective associated with this study.

For Hutchinson and Waters (1987), ESP learning is not only a matter of linguistic knowledge, especially for ESP learners whose subject knowledge might far exceed their

linguistic level. Teaching, therefore, should take into account both types of knowledge. Similarly Bertin et al. (2010) debated that this knowledge should be considered in ESP teaching.

Hutchinson and Waters (1987) added that language learning is, to some extent, incidental, which means that one does not have to be thinking about language problems to learn the language; we can think about other problems and language learning takes place in problem-solving approach. According to Krashen (1981), “the important point is that the problems should oblige the learners to use the language and thereby to fix the language into the matrix of knowledge in their minds” (p. 129-130). This last point was discussed in Chapter 7 in which it was noted that PBL can help with this type of L2 learning.

These arguments justify the choice of PBL as a methodology that provides an opportunity to learn both language and subject knowledge, promotes affective and interactionist learning, and encourages incidental language learning through problem-solving.

Related to learners’ knowledge are the teaching and learning materials and the methodological approaches used in the classroom. Examples of the materials to be used are “the owned authentic material from the learner’s job or studies” (Hutchinson and Waters, 1987; p.187).

According to Drobic (1978), authenticity should be a priority; “the ESP approach is not dogmatic about particular methods and techniques used in ESP. It stresses the use of what has proved useful. The ESP programmer must take at his starting point real communication needs stemming from real life-situations” (p.4). For Hutchinson and Waters (1987), authenticity of text should be regarded as the extent to which a text serves the purpose of learning in the target situation. Master (1998) also valued the authenticity of the course content and its potential positive impact on the activation of learners’ strategies. MacDonald *et al.* (2000) identified four types of authenticity, which include “*these are* learner authenticity, task authenticity, classroom authenticity and teacher authenticity” (p.254). They quoted Breen (1985) who associated a learner’s authenticity with materials that involve “learner’s prior knowledge, interest and curiosity” (p.63 cited

in MacDonald et al., 2000, p. 254). He argued that a task is judged to be authentic according to the purpose it serves, classroom authenticity is about the teacher's choice of relevant social situations to the learner, and teacher's authenticity is about being responsive to learners' needs.

Master (1998) asserted that, in ESP teaching, "although it may be difficult at times to pin down what students need to know and do, we have no alternative but to attempt to develop curricula and pedagogy ever more appropriate to our student population" (p. 9). Master (1998) quoted Widdowson (1981), who also recommended that the course content allow the development and 'activation' of students' learning strategies:

Hence the language content of the course is selected not because it is representative of what the learner will have to deal with after the course is over but because it is likely to activate strategies for learning while the course is in progress (Widdowson 1981, p 5, cited in Master, 1998, p. 8).

This brings up two other major issues in ESP: specificity and content. Specificity, as it has been discussed earlier, is the feature that distinguishes ESP from EGP. Douglas (2010) argued that specificity is affected by context. In the framework of English for nursing students, he showed how language needs of nurses can change from one context to another. He pointed out that when talking to a patient, for instance, the nurse will use a specific register, which is not necessarily technical, but which fits within a specific context.

Dudley-Evans and St John (1998) suggested that specificity impacts ESP learners' motivation and that the more oriented the course to the ESP learners' subject needs, the more motivating it is.

Many learners are hungry for material and advice that will help them with their specific course or with particular skills related to their course. Thus, for example, team-taught courses where the language teacher works together with the subject lecturer to help international students understand actual lectures on postgraduate courses, appear to be highly motivating (p 10).

Eventually, content becomes a corner stone in an ESP course and it should be seriously considered in any course design depending on the learners' needs as well as their level of proficiency in their subjects. Dudley-Evans and St John (1998) distinguished between two types of content: *career content* and *real content*. They argued that it is necessary to understand these two notions in order to understand ESP as well as

motivation in ESP. The authors explained that carrier content is the content or the topic from the learner's field used to teach the actual content, such as the concept of *process*, for instance. To elaborate on this, they illustrated their argument with an example from *Nucleus: General Science* written by Bates & Dudley-Evans (1976). In this example, the authors aimed to teach the language of process, and, in particular, sequence words; the life cycle of a plant is the topic used to teach this structure. The sequence words are considered the real content, while the life cycle of a plant represents the carrier content.

Although it is useful to distinguish between these two concepts, it may be argued that they are inseparable. In fact, when using real texts from the domain of the learner, the carrier content, as Dudley-Evans and St-John call it, will always be presented within the conventions of the discourse community in real content (the underlying structure of a sentence or text). For example, taking a text about the types of diseases from a medical field will make use of classification expressions. In addition, the ESP learners need the two types of content, as the carrier content will teach them the conventions of the discourse, terminology, as well as structure. The claim in this study can be confirmed with a statement from Dudley-Evans and St John (1998), as follows:

A key feature of ESP work is research into how spoken and written texts work, we need to understand how they are used within a particular discipline or profession, and how they attempt to persuade their audiences of the validity of their claims and arguments (p.17).

10.7. Teaching Approaches in ESP

Indeed, ESP researchers have embraced different teaching approaches over the past decades to meet learners' needs, starting from register analysis in the 1960s to Task-Based Learning in recent studies, as outlined below in two sections, based on their underlying views of learning.

10.7.1. Register Analysis, Discourse Analysis and Target Situation Approaches

Over the two first decades after the rise of ESP, teaching had focused on the product rather than the process. Several approaches reflected this view, such as register analysis, discourse analysis and target situation approaches.

Hutchinson and Waters (1987) reported that the first phase of ESP teaching targeted register analysis, which occurred in the 1960s and early 1970s and was marked with the works of Peter Strevens (Halliday, McIntosh and Strevens, 1964), Jack Ewer (Ewer and Latorre, 1969) and John Swales (1971). The core concept followed by these studies, as Hutchinson and Waters (1987) explained, was that the English language register differs from one discipline to another; “the English of, say, electrical engineering constituted a specific register different from that of, say, biology or of general English” (p.9). Eventually, materials were analyzed to identify their specific linguistic features in order to incorporate them into the ESP course of the field, therefore, making the ESP course more relevant to the learners’ needs. These works, as Hutchinson and Waters (1987) reported, have shown that language forms used in scientific texts do not differ from forms used in general English, but special forms were favored over others. However, courses based only on register analysis did not meet the challenges and soon this approach was overtaken by another trend, the trend of discourse analysis.

The discourse analysis approach came as a reaction to the register analysis approach. The belief was that knowing and understanding technical terms was important, but it was not the cause of students’ issues with this language. The real problem was how to enable students do decipher meaning in larger units than a sentence, which involves a cognitive process. Hutchinson and Waters (1987) explained that discourse or rhetorical analysis is a move to an upper level of language study, which emphasises language use and it marked a shift in linguistics. Johnstone (2008) explained that discourse looks at a level above the sentence and is concerned with meaning and meanings established by different interlocutors:

How meaning can be created via the arrangement of chunks of information across a series of sentences or via the details of how a conversationalist takes up and responds to what has just been said. Discourse analysis put focus on larger units than the sentence and shed the light on how speakers indicate their semantic intentions and how hearers interpret what they hear and on the cognitive abilities that underlie human symbol use (Johnstone 2008, p.6).

Research and studies in this orientation have shown how discourse is important for ESP learners and learning. In ESP, the idea is that sentence-based learning and focus on ‘short turns’ do not allow the learners to stretch their abilities to participate in ‘*extended discourse*’ and become effective communicators (Skehan, 2003). For example,

linguists Selinker, Trimble, and Trimble (1978) believed that students' problems with coping with the language of their discipline is not their inability to understand words or sentences, but the overall meaning underlying these sentences when they are combined in a text.

What appears to be a serious learning problem for advanced learners attempting to learn to read their subject matter in English: namely, the apparent inability of the learner to gain access to the total meaning of a written piece of EST discourse even when he or she may be able to understand all of the individual words in each sentence of an EST paragraph, and/or all of the sentences in that particular paragraph (Selinker et al., 1978, p.11).

Selinker's *et al.*'s (1978) position is echoed in more recent studies (e.g., Halliday & Martin, 2004). Halliday and Martin(2004) argued that students often have problems with the language of science, which alienates them from their subjects. In scientific subjects, students encounter unfamiliar forms of discourse, the discourse of science. This discourse contains technical words, which makes the researcher think at first reflection that these are the sources of students' difficulties, but students do not have problems coping with these terms and that writers are aware not to introduce many of them at one time; however, the real problem resides in the discourse of science. Halliday and Martin (2004) argued that some scientific texts hardly contain technical terms, but are still complicated for learners to understand.

More recently, and in accordance with this view, Olsen and Huckin (1990, cited in Allison & Tauroza, 1995) conducted an exploratory study involving the comprehension of an engineering lecture among L2 students. The authors came to the conclusion that features of discourse, rather than sentence structure, resulted in problems with comprehension:

Olsen and Huckin claimed that the problems that several of their L2 subjects had with an unusually elaborate discourse organizations were due to a lack of familiarity with the structure and goals of the discourse as a whole. They rejected other possible explanations for the problems as "sentence- level linguistic inadequacies" (1990:34) related to vocabulary or some other linguistic aspect of the lecture, or indeed with the signaling of local discourse relations (p.159).

Eventually, the focus was no longer on sentence forms but on understanding how sentences were put together to form meaning. This was meant to help learners gain insight into how English is used and help them overcome language difficulties in their subject areas. However, the role of register has not been disregarded in discourse analysis. Recently, Resche (2001) established a link between the role of terminology and

that of discourse. She cited Besse (2000), indicating that « *Le domaine représente l'un des trois éléments du trépied sur lequel repose le terme (les deux autres étant le concept et la définition)* » (p. 41). This statement highlights the importance of word meaning in discourse, which makes the two approaches of register analysis and discourse analysis complementary rather than rivals.

Chambers (2007) stated that discourse analysis continued to develop in ESP teaching, especially with the works of John Swales (1988) on Genre Analysis. She reported that Swales (1988) pointed out “the importance of text-based approach” (p.37) and that his work in this area informed LSP teaching; “His definitions of the characteristics of a discourse community include participatory mechanisms of intercommunication, mastery of a specific lexis, and the use of one or more genres” (Chambers, 2007, p.37). Again, from this definition it is evident that the notion of lexis has not been disregarded in this approach; it was considered as insufficient. Basturkmen (2013) explained that Swales’ work (1988) on genre helped identify areas of interest in LSP teaching.

The approach generally includes investigation of context (how the genre is used and its purposes in the target discourse community) and a linguistic analysis (investigation of the genre’s rhetorical structure in terms of moves and steps and sometimes analysis of grammatical and lexical features as well). The descriptions resulting from such research have had great importance for ESP, especially English for Academic Purposes (paragraph 15).

Chambers (2007) also argued that genre analysis provides a guideline for learner norms and conventions of the target language discourse community:

The nonnative speaker’s or language learner’s progress as a member of discourse community can be situated on a continuum on which the following milestones can be recognized:

- Introduction to the characteristics of the discourse community: lexis, genres and participatory mechanisms
- Familiarity with those characteristics and ability to use them following the accepted norms
- Awareness of the choices to be made when operating within the discourse community and of the implications of those choices
- Confidence to choose a non-standard element while otherwise conforming to the norms of the participatory mechanism in question (p.38).

Following this discussion, Chambers (2007) explained that in an LSP classroom, the teacher is encouraged to use text materials from the learners’ discipline, which enable them to develop an awareness of the features of discourse in their field and the

competency to function according to these norms. Thompson (2001, cited in Chambers, 2007) drew on the difference between using norms and imitating models:

Students should be encouraged to view genres as potential forms, but not as models of writing; the analysis of examples of a genre should be considered in terms of the rhetorical choices that a writer had to make and the forms of language and organization that were available to help the writer to achieve the purpose (Thompson, 2001, p 33 cited in Chamber, 2007, pp. 39-40).

This last point relates to the discussion in Chapter 4 in relation to the needs analysis and the textbooks that are used, and it supports the claim that writing in a genre based approach is not an imitation of models, such as with the product-based approach.

In fact, due to development of computational linguistics and corpus linguistics, there is a revival of the use of the discourse analysis approach with the use of ‘concordance’ (Chambers, 2007).

Finally, it is argued that because problem-based learning methodology makes use of texts from the learner’s discipline in genuine situations, the student is led to learn lexis and discover the mechanisms of discourse in his/her field. This knowledge should emerge from frequent use and practice of texts. PBL seems to be compatible with such an approach, and it carries its own benefits to the ESP learner.

Brunton (2009) argued that target situation analysis or learner’s needs analysis gained ground in ESP course design in the early 1980s, as it focused on learners’ needs in their work place and gave satisfaction to the stakeholders and employers’ demands. This approach valued the product and the learner’s output, which was welcomed by course demanders. Hutchinson and Waters (1987), however, in their learning-centered approach, criticized this approach for remaining at the superficial level of language description. They also show that its underlying concept favors the product over the process, thus giving more attention to the destination rather than the journey in learning.

Another problem with this approach, which was pointed out by Dudley-Evans and St John (1998), is that “none of the four skills, however, are given special attention and there are few exercises that have the aim of developing particular study skills” (p.23). Eventually, the works that followed in the late 1970s focused on skills giving rise to the skill-based approach. This new move was followed by other approaches which also

focused on the teaching/ learning of ESP. These approaches will be discussed below, in the next section.

10.7.2. Skill-Based Approach and Task-Based Learning

Dudley-Evans and St. John (1998) reported that in association with communicative language teaching, CLT, a new approach emerged in ESP teaching, the skill-based approach, which “identified priorities amongst the four skills for a given situation” (Dudley-Evans and St. John, 1998, p. 24). They explained that a skill-driven ESP course depends on learners’ different situational needs. In addition, learning processes gained ground in this approach;

The basis of the approach is that, in addition to language work, there is a need to address the thought processes that underpin language use. These thought processes may either be fairly general, relating to all academic or professional activity, or specific to a particular discipline or profession (p.24).

Hutchinson and Waters (1987) believed this approach goes a step further by giving insight and enabling the understanding of the underlying strategies used by learners to learn a language. In addition, this approach was able to preserve the notion of specificity of the profession, as we can see in the quote above.

Just like CLT, helped forge the concept of the Skill-Based approach, Action-Based learning gave rise to Task-Based Learning, which in turn impacted ESP in different ways. Task-Based Learning (TBL) approach, in ESP, gave rise to a new approach in ESP – needs analysis – as outlined in Chapter 4. Long (2005) stated that the concept of learners’ needs has become associated with the ability of the ESP learner to do the task required at work, and, therefore, what learners need to know to achieve language and skill knowledge. Long’s (2005) definition of task has a broad scope, as Ellis (2003) states: “[it] includes tasks that require language, for example, making an airline reservation, and tasks that can be performed without using language, for example, painting a fence” (p.2). A task is defined as an activity “where the target language is used by the learners for a communicative purpose in order to achieve an outcome” (Willis, 1996, p. 26). Ellis (2003) argued that “a task requires the participants to function primarily as language users in the sense that they must employ the same kinds of

communicative processes as those involved in real-world activities. Thus any learning that takes place is incidental. In contrast, an ‘exercise’ requires the participants to function primarily as ‘learners’; here learning is intentional” (p.4).

However, a few resources in the literature discuss the implementation of this approach in ESP teaching or report any field work results. For instance, Kavaliauskienė (2005) discussed the possibility of implementing Task-Based Learning in ESP:

Teaching through tasks creates favourable learning conditions for students who study English for Specific Purposes (ESP) at tertiary level. TBL involves students in performing tasks relevant to their future profession, increases learners’ motivation and does not emphasize linguistic issues in the primary stages. Language analysis is incorporated only after learners have performed a task and depends on their needs, which become apparent only after performance. TBL seems to grant meaningful use of language and can promote autonomous learning. Moreover, it implies meaningful use of language and provides unthreatening environment for learning (p.1).

Sarré (2013) also discussed the possibility of the implementation of TBL as well Scenario- Based Learning (SBL) in the teaching of ESP in biology courses, since the three approaches can adhere to action-based learning;

Although tasks are the backbone of [English for Biologists] EFB, the course draws on a number of long-established well-known approaches in an attempt to take TBLT one step further. Indeed, EFB is the result of the combination of three meaning-driven approaches to task development: TBLT including *micro-tasks*, English for Specific Purposes (ESP) and Scenario-Based Learning (SBL). All three approaches are complementary and can be considered as action-based, as they all have in common “an emphasis on the learner as an *active person*” (van Lier, 2007, p. 48) (Sarré, 2013; p. 5).

Sarré (2013) reported that the concept of task is based on social interaction and authenticity. Based on Buck (2005), he explained that SBL is based on four components; a given real-life situation, materials (source of the input), the role of process, and an expected outcome. He added that this approach favors authenticity and students’ interaction, and enhances problem-solving abilities, which encourages its applicability to ESP. He argued that the three aforementioned approaches attend to learner’s needs. This view was implemented in practice in an EFB course in France which involved 120 students and the results which were based on students’ perception were promising. Sarré concluded that “TBLT is not an exclusive approach: it can indeed greatly benefit from its combination with other approaches which contribute to enriching it, to remodeling the TBLT pedagogical cycle and to taking tasks to a different level” (p. 13). However, research in the teaching of ESP from this perspective remains very scarce. We will re-

visit TBL approach in Chapter 11 because it is very similar both in theory and practice to Problem-Based Learning. In the following section, we will discuss another approach to ESP teaching which focused on the integration of language and content to better benefit the learner.

10.7.3. Content and Language Integrated Learning

The argument about content and authenticity in ESP learning discussed in Section 10.6, above can be better explained by Content and Language Integrated Learning (CLIL) or Content-Based Approaches to Instruction (CBI). CLIL, as an approach, calls for the use of the ‘carrier content’ to teach the ‘real content’ or the linguistic content. In this approach, language is viewed as a vehicle for information that can find support in corpus linguistics.

Content-based language teaching is distinguished first of all by the concurrent learning of specific content and related language use skills in a ‘content driven’ curriculum, i.e. with the selection and sequence of language elements determined by content. . . . Essential to all content-based instruction is a view of language acquisition which emphasises the incidental internalisation of new knowledge by the learner from rich target language data, while focusing on meaning to be communicated (Wesche, 1993; pp. 57–58, cited in Basturkmen, 2006; p. 101).

As opposed to Dudley-Evans and St-John’s recommendation, the real content or carrier content is the one that determines the real content or linguistic content and not the opposite. A carrier content driven course will focus on the topics from the discipline of the learners that are judged important for them. Language learning comes naturally along knowledge learning and happens incidentally. In fact, the choice of PBL is based on this view and it is hypothesized that PBL, as an ESP methodology, makes this claim possible and puts it into practice.

To conclude, it may be argued that the notions of authenticity, specificity, and content in ESP are inter-related and serve one purpose: familiarizing the ESP learners with the discourse of his/her domain, and they can be all targeted through the use of the field of the learner. From this perspective problem-based learning seems to meet the requirement of an ESP course, as is discussed in Chapter 11. One of the benefits that PBL brings to ESP is authenticity, specificity, and content, since it targets the learners’ field context and urges the use of materials that are meaningful and useful to them, just as in CBI. PBL is a theoretically-established approach to teaching, and, if embraced in ESP or

EOP, it can realize the learning goals of CBI. PBL has other advantages beyond language and content. It also develops learners' problem-solving skills, thinking skills, and learning strategies that can lead to autonomy and increase student's motivation. Perhaps, the time has come to talk about Problem-Based Content and Language Learning (PBCLL).

10.7.4. Summary

In Chapter 2, the question of which methodology works best for ESP was addressed. So far, the different approaches in ESP with their merits and their drawbacks have been outlined. The approaches discussed above target the type of language to be taught rather than how it should be taught. As Hutchinson and Waters (1987) have already pointed out, most of the approaches discussed above target the product and the language to be taught rather than learning as a process.

In this study, the interest is in a methodology that makes it possible to use the language, topics, content, and the context of the target discipline, on the one hand, and enhancing learner's strategies on the other hand; a methodology that allows the learner to thrive on the linguistic level in his/her field and become an autonomous language user.

In Chapter 11, PBL is proposed as an alternative methodology to teach EAMP. This methodology takes into account the domain of the learner, the tasks to be completed, and the language that goes with these, whether in terms of discourse or terminology. On top of these merits, this methodology is epistemologically sound and it is meant to develop learners' learning strategies and enhance autonomy.

In the next section, the ESP learners will be considered to better understand how the methodology is really desirable for use.

10.8. Language Skills in ESP

Dudley-Evans and St John (1998) presented a comprehensive study of language skills in ESP upon which the discussion in this study will be based. The authors classified ESP skills into five macro-skills: reading, listening, listening and speaking, speaking, and writing. In this classification, they differentiate between listening as a monologue, such as in a presentation and listening in a discussion where the listener is also expected to

take part as a speaker. This classification, however, does not imply to teach them separately, but rather in an integrated way. Below is a discussion about these skills, but the focus in this study is on reading, as this has been identified in the needs analysis as one of the major needs among medical students in order to be able to understand their lectures and materials in English. The use of PBL for the teaching of this particular skill will also be discussed.

10.8.1. Reading

Dudley-Evans and St John (1998) discussed three main points related to the skill of reading: (1) the purpose of reading, (2) the balance between micro-skills (strategies) and language, and (3) designing and teaching reading.

They reported that one of the biggest developments in the concept of reading is the move of focus from “Text as a Linguistic Object (TALO) to Text as a Vehicle of Information (TAVI)” (p.96). In TAVI, certain reading objectives are seen as more important than others; Dudley-Evans and St John reported that Johns and Davies (1983) “encapsulated the key principles that, for ESP learners, extracting information accurately and quickly is more significant than language details; and that application of the information in the text is of paramount importance” (p.96). Below is the table comparing TALO to TAVI.

	TALO	TAVI
Principles underlying text selection	<ul style="list-style-type: none"> • texts illustrate syntactic structures • topics are of general interest • texts are specially written, modified or re-written • new vocabulary is controlled • texts are graded and short • texts are selected by teachers 	<ul style="list-style-type: none"> • texts are chosen for their value in relation to students' needs • a range of authentic texts are used • grading is through tasks and support • texts are of different lengths, getting longer • texts are selected not only by teachers, but also by learners and others
Preparatory activities	<ul style="list-style-type: none"> • almost none • some translation of vocabulary 	<ul style="list-style-type: none"> • always: important as direction finders, to awaken interest and to establish purpose
Working with the text	<ul style="list-style-type: none"> • focus on language and what is unknown • focus on detail and understanding all the sentences and words • questions on syntax 	<ul style="list-style-type: none"> • focus on information and what is known • guessing unknown words • focus on links between meaning (function) and form
Type of teaching/learning interaction	<ul style="list-style-type: none"> • teacher monologue • teacher-centred: teacher questions, student responds, teacher evaluates 	<ul style="list-style-type: none"> • students work in groups • reversal of roles: students ask questions, evaluate each other, reach agreement • model for self-study • learner and learning-centred*
Follow-up activities	<ul style="list-style-type: none"> • comprehension questions • grammar and lexis exercises 	<ul style="list-style-type: none"> • using the information: transfer, application or extension • applying techniques

* the term 'learning-centred' was not used at this stage (1983) but with their discussion on modelling how students would study their subjects outside of the English class one aspect of the concept is present in Johns and Davies' approach.

Table 6; TALO and TAVI, “ (Johns and Davies, 1983, cited in Dudley-Evans and St John, 1998; p.97)

In Chapter 6 we contended that we adopt the view that sees language as a vehicle for content. It follows that reading in ESP should not only be language per se, but understanding and extracting information that can be useful to fill gaps of knowledge in language learners' minds, thereby helping them to develop content knowledge about their

subjects presented in the target language. Here, PBL emerges as a candidate for teaching reading, such as in TAVI. The reason is that working with texts in PBL follows the same principles and procedures as in this approach.

Regarding language and skills or strategies, Dudley-Evans and St John (1998) reported that successful reading has been associated with the use of strategies. This point has already been discussed in learners' strategies and the role of memory in learning in Chapter 8 in this study. Dudley-Evans and St John (1998) also argued that these strategies can be transferred from L1 to L2 reading. Below is a list of these strategies.

- Selecting what is relevant for the current purpose;
- Using all the features of the text such as headings, layout, typeface;
- Skimming for content and meaning;
- Scanning for specifics;
- Identifying organizational patterns;
- Understanding relations within a sentence and between sentences;
- Using cohesive and discourse markers;
- Predicting, inferring and guessing;
- Identifying main ideas; supporting ideas and examples;
- Processing and evaluating the information during reading;
- Transferring or using the information while or after reading (Dudley-Evans and St John, 1998, p.98).

In Chapter 8, in the section about autonomy, it was also argued that it is not enough for learners to know these strategies, but they also need to develop them and to know how to use them on their own.

This argument is in line with a cognitive view of reading. Looking at the cognitive model of learning presented by Grow (1996), it is understandable how this knowledge construction takes place and how this perfectly matches learning processes in PBL.

Learning and Remembering Meaningful Information
A Cognitive Model

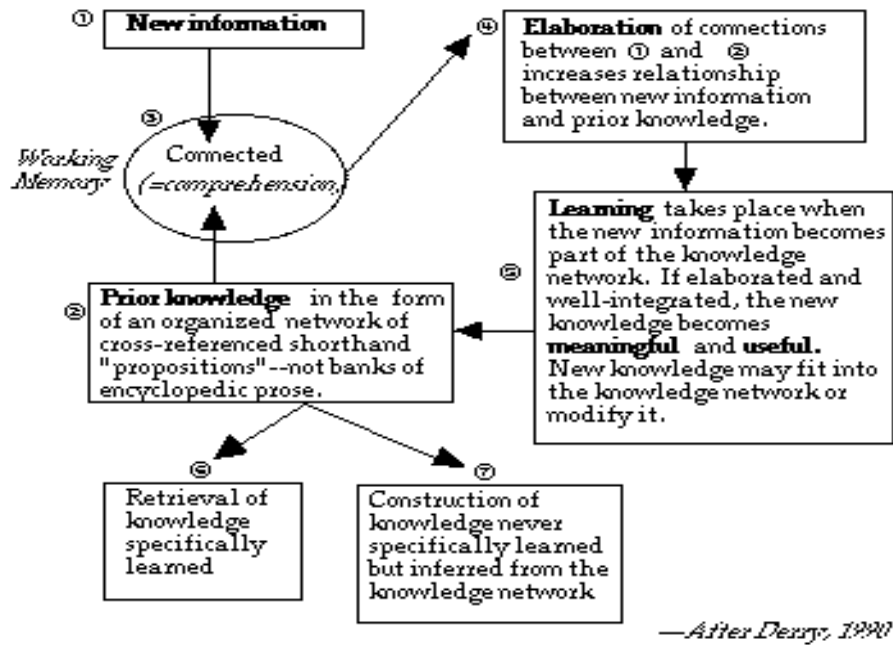


Figure 45; A Cognitive Model of Learning; (Derry, 1990 in Grow, 1996; p.1.)

In this model, three phases have been marked in reading: comprehension, which includes steps 1 to 3, learning, which is steps 4 and 5, and, finally, recall and reconstruction, which are steps 6 and 7.

Comprehension, as Grow (1996) argued, requires certain knowledge of the information presented in the text and reading strategies, and it involves the ability of the reader to associate the new information with previous knowledge:

Information becomes comprehensible to readers who can combine the new information with organized existing knowledge (a knowledge network) on the subject matter. The comprehension of new information requires a meeting of the new with the known. This meeting of the known with the new is one of the fundamental concepts of cognitive learning theory (p.2).

Grow (1996) suggested that comprehension, however, does not necessarily result in learning. People read, understand, and might forget as they disregard a lot of the information they do not need. Two conditions are necessary for learning to take place; that is, knowledge should be meaningful and useful for the learner. This is possible when learners “convert comprehended information into learned information, through such activities as taking notes, summarizing, outlining, making analogies, creating mental

imagery and similar activities known as elaboration” (p.3). He concluded that proper construction and storage of knowledge will also impact recall. Knowledge will also help the inference and perception of something that was not literally read, but as a result of what one already managed to learn.

Similarly, in PBL, a team of students work together to come up with one or more possible solutions to a problem that is related to their field of study and similar to problems they would face in the job. Originally, all these problems were medical cases; however, nowadays with the proliferation of PBL in different disciplines, problems are different as they are designed to meet the needs of the students’ profession. Learning occurs through the process of solving an ‘ill-constructed problem’, a complex case that has no single answer with the guidance of a facilitator. In this process, students’ previous knowledge is activated as they analyze the problem and try to understand it, meaning is negotiated, gaps of knowledge are identified, and students have to find the information needed to come to one or more possible solutions. Eventually, knowledge in PBL is constructed; it is properly learned and it can be easily remembered and retrieved when needed, as shown in the cognitive model of learning in Figure 45.

Understanding learning in reading can also facilitate issues in course design. For instance, it becomes important to select texts that students are familiar with in terms of content so that they have some pre-requisite knowledge. It also implies the selection of texts that are meaningful and useful to learners. This makes reference to reading as part of ESP. As far as the design and teaching of reading are concerned in ESP, Dudley-Evans and St John (1998) presented a list of criteria to select a reading text and discussed the issue of who can select it. They argued that while teachers usually select texts, it is also beneficial for students to contribute in this task:

Learners might bring texts that they need to understand or texts they think would be interesting and valuable. The advantage here is that learners ‘own’ the texts and are involved and committed to them. These texts may be allotted class time or self-study time according to whether they represent group or individual needs and interests (p.99).

Again, in PBL, although teachers design the course, in tutorial sessions students have to bring their own texts to look for the information that is useful to fulfill a certain task and fill their knowledge gaps. Students search a text and select what is suitable and

comprehensible for them. This would, therefore, increase their interest and their motivation.

Dudley-Evans and St-John (1998) also stated a number of criteria to be followed in individual text selection based on the notions discussed earlier regarding carrier content and real content, as outlined in Table 7 below.

Carrier content	Real content
conceptual level	significance
novelty	relation to objectives
value	exploitability
interest	clarity
	accessibility

Table: 7; Text Selection Criteria (p.99)

Dudley-Evans and St-John also presented other criteria to be followed across a whole reading course design, as in Table 8 below.

Criteria	Comment
a range of sources	to reflect what is read and written
the full range of topic types	examples of all those common to the field (see Davies and Greene, 1984)
full range of purposes	to cover all purposes shown by needs analysis
non-verbal information	exploit realistically
dating	carrier content for on-going use must stand the test of time
varied text lengths	according to real reading; we process long and short texts differently

Table: 8; Text Selection Criteria across a course (p.99)

These criteria helped with the selection of text for this study and the course materials that were developed for the purpose of this study, as will be detailed in Part II of this study.

Once the text is selected, reading tasks design will follow. The teacher has to set clear purposes and objectives and design tasks accordingly; “Can general principles be deduced, data analysed, situation appraised or problems solved?” (p. 100). Dudley- Evans and St-John (1998) recommended the following procedures in a task design: “With longer texts or more complex documents extracting the information and reorganising it and fitting it in with existing knowledge is necessary. Visual representations can be very

helpful for this” (p. 101). They added that these representations can vary according to the type of information transferred.

10.8.2. Listening to a monologue

Dudley-Evans and St-John (1998) indicated that listening to a monologue is a seminal skill, whether in EAP or EOP. In the former, students have to listen to lectures and understand them. In EOP situations, listening can be involved in presentations, seminars, and instructions. They argued that listening to a monologues and reading are similar in significant ways:

Comprehension of a lecture, seminar or business presentation will involve the same two-stage process we noted for second language (L2) reading comprehension, the first processing being of the language, the second being the change to background knowledge of the topic that results from the understanding of the language (p.102).

Below is a list of micro-skills associated with listening to monologue:

Ability to

1. identify the purpose and scope of monologue
2. identify the topic of lecture and follow topic development
3. recognise the role of discourse markers
4. recognize key lexical items related to subject/ topic
5. deduce meanings of words from context
6. recognize function of intonation to signal information structure (for example pitch, volume, pace, key) (Richards,1983, cited in Flowerdew, 1995, in Dudley-Evans and St John, 1998; p 102).

The difference between listening and reading, however, remains the ability of the reader to process the language at his/her ease and going back and forth as s/he wishes, whereas the listener does not have this advantage which should be considered in course design of this skill. This skill requires knowledge of ‘phonology’, ‘speed of delivery’, ‘real-time processing’, ‘note-taking in real time’, and ‘deducing the speaker’s attitude’ (Dudley-Evans & St-John, 1998; p. 103-104).

10.8.3. Listening and Speaking

This skill is involved in communication, as it requires both ‘active’ listening as well as speaking. Active listening, according to Dudley-Evans and St John (1998), “includes the non-verbal and the verbal encouragement given to a speaker” (p.106). It, therefore, includes body-language as well as speaking. It involves “paraphrasing and summarising so that the speaker knows that their message has been heard” (p. 106).

Eventually, listening requires certain interactions with the speaker, and, in turn, involves speaking such that “an effective spoken interaction encourages talk (through active listening) and controls the direction of the interaction – and questioning is one way to achieve that” (p.107).

10.8.4. Speaking Monologue

By spoken monologue, Dudley-Evans and St John (1998) meant oral presentation, which “can be a feature of EOP and EAP work” (p. 112). In this study, while working with PBL, learners were prepared and provided presentations in relation to each problem scenario they worked on. The information gathered here as part of this study has been a great help in this process. Dudley-Evans and St John (1988) presented the features of oral presentations in detail, but a summary is as follows: “An effective oral presentation is built on language and skills and requires confidence. ESP courses are likely to look at structuring, visuals, and advance signalling as well as language” (p 112). The results in this study showed that these micro-skills can also be harnessed through presentations, and, eventually, this works in two directions. These requirements become part of students’ behavior when learners are exposed to them and have the opportunity to put them into practice.

Regarding the teaching of this skill, Dudley-Evans and St John (1998) argued that it is usually restricted to classes with a small number of students, but it is also possible when large classes are split and students make presentations on separate days. The authors also suggested that this can be very fruitful when it is made part of the outcome of a writing or reading-based project. They reported that “such a component has a motivational value where learners want to improve their spoken English even though their main immediate needs are with the written word” (p. 114). They added that presentation should also be associated with a teacher’s feedback in relation to the learners’ work, particularly praise and evaluation sequencing; “strengths need highlighting and building on, positive features discussing first. Areas for improvement need concrete suggestions of ways and means of achieving it” (p.114). It should also be added, based on research involving motivation and autonomy that was discussed in Chapter 8 in this study, that self-evaluation and peer-evaluation should also be part of

feedback to the presenter. The results in this study also confirm the benefits of these micro-skills.

10.8.5. Writing

Dudley-Evans and St-John (1998) discussed the writing components and approaches involved in ESP. They stated that genre knowledge is a major component in this skill. They also explained that genre is associated with certain understandings:

Knowledge of genre involves an understanding of the expectations of the discourse community that reads the text and of the conventions that have developed over time about the structure, the language and the rhetoric of the genre. It also involves an awareness of the fact that genres evolve with time and change in accordance with changes in the communities that use them (p.115).

Writing, as a skill, depends on the knowledge and development of a definite number of micro-skills, such as planning, drafting, and revising. However, not all the approaches that have developed over the course of the teaching of this skill recognize or make use of these micro-skills. The product approach, for instance, which was discussed in the needs analysis in Chapter 4, focuses on the end product and the imitation of a model text. The process is completely ignored, since this approach stems from behaviorism and is based on the concept of reinforcement and drills.

The process approach, which emerged as a reaction to the product approach, focuses on the aforementioned micro-skills: “the process approach has emphasized the idea of writing as problem-solving, with a focus on thinking and process” (Dudley-Evans and St John, 1998, p.117). The authors presented two major stages: stage 1, which involves thinking and planning, and stage two, which includes drafting and editing;

Generate Ideas → Select Ideas → Group the Ideas → Order the Ideas
Robinson (1991: 104) characterises the subsequent writing stages in the following way:
Writing Task → Draft 1 → Feedback → Revision → Input → Draft 2 → Feedback → Revision → Draft 3

Box 2, Stages in the process approach (Dudley-Evans and St-John, 1998; p.117)

However, the process approach has been criticised for not taking the broad context of writing into account and does not fulfill the criteria of genre knowledge, as discussed above. Eventually, a newer approach was needed, the social-constructivist approach. As Dudley-Evans and St-Jhon (1998) explained this approach stressed the

requirements of “having an awareness of the community’s values and expectations of text and an ability to resolve the tension between writers’ creative needs and the norms for writing generated by the consensus within the community” (p.118).

10.8.6. Summary

In this section, five macro-skills involved in the ESP course were discussed. It was argued that reading is important for the EMAP learners included in this study, and it was hypothesized that PBL can teach many of the required strategies for successful reading and enhance this skill. Listening, speaking, and speaking as monologue presentations were also discussed. PBL provides learners with the opportunity to communicate together, negotiate ideas and interact with each other. It was hypothesized that this can help with the teaching of these skills in genuine situations. Presentation is also one of the fundamental steps that can be associated with PBL, and it is assumed that it can play a role in students’ learning. Finally, writing in the social constructivist approach recommends knowledge and awareness of genre, which can be improved and developed through frequent reading and exposure to authentic texts in the learners’ discipline; this is also applicable to PBL. To wrap up, the general hypothesis is that PBL enhances language skills and enables learners to develop the required micro-skills or strategies in order to be successful in using these skills.

10.9. The ESP Learner

ESP learners share several factors with general language learners, but they also have other features that distinguish them as ESP learners. In Chapter 8, learner factors and strategies were discussed, each of which pertain to an ESP learner. In this section, the specific features of ESP learners are discussed, which McDonough (1984) summarized as follows:

- Reasons for learning

- Attitudes
- Expectations
- Age
- Proficiency
- Educational level (p.15)

Attitude, as McDonough (1984) explained, can vary among ESP learners. Although it is usually assumed that ESP learners are motivated, this is not to be taken for granted. Kennedy and Bolitho (1984) asserted that ESP learners sometimes have a negative attitude towards English learning. This reluctance may be the result of a previous experience in language learning, particularly if it was not successful. They recommended that ESP practitioners use new materials and methodologies that serve the learners' needs, and, therefore, can engage them in learning.

These learners have needs and expectations to be addressed. These needs are dictated by subjects other than English, but the ESP learners resort to English to meet these needs and the language becomes a tool for knowledge or work. The learner develops and matures in his/her subject and interacts and changes. These changes also have to be taken into consideration during course design, for instance, from one academic year to another, especially in EAP courses.

ESP learners are specialized in a subject area, and, therefore, are usually proficient in this subject or at least have some knowledge about it. This has to be taken into consideration during course design. Drobnic (1978) also recommended that the learner's expertise in the subject should not be underestimated. Dudley-Evans and St John (1998) explained that ESP students are different from general English language learners in the sense that they have knowledge in their subject that they bring to class and that the ESP teacher does not have. The more expertise they have in their subjects, the more subject knowledge they bring. However, they also stated that "doctors do not expect English teachers to diagnose, prescribe, prevent or cure illness; they expect some understanding of the patient-doctor or nurse-doctor interactions so they can learn appropriate language" (p.188).

In the context associated with this study, the ESP learners are new to the field of medicine, as it is their foundation year. These students do not have much knowledge to

bring to the ESP classroom and they need to build some concept knowledge in their field, as discussed earlier in Chapter 4. Robinson (1991) argued that “students who are newcomers to their field may need some instruction in the concepts and practices of that field” (p.2).

10.10. The ESP Teacher

McDonough (1984) outlined the commonalities between a teacher of general English and an ESP teacher. He recommended that an ESP teacher keeps up with the knowledge provided by linguistics and language teaching.

ESP teachers obviously have much in common with any language teacher. The ESP teacher needs to take account of developments in linguistics and learning theories, aims to keep up with current views on the place of the learner in the educational system [...] What distinguishes the ESP teacher from many colleagues in the language-teaching world, however, is the additional crucial need to understand- and be willing to accommodate- the requirements of other professionals, be they in academic or occupational spheres (p. 127).

McDonough (1984) also explained that an ESP teacher has to respond to the needs and requirements of other professionals; an ESP teacher/ practitioner has to first liaise with employers, sponsors of the course subjects, and consider the available budget as well as resources. In the framework of a needs analysis, s/he should collect data about the target situation language needs. For instance, s/he has to observe the target situation and assign questionnaires for the students to analyze their needs. S/he also has to design course materials.

In addition, there are more specific roles that the teacher has to perform in the classroom: *‘a catalyst’, ‘organizer’, ‘advisor’, ‘coordinator’ and a ‘friend’* (Macdonough, 1984; p. 129).

However, McDonough (1984) stated that an ESP teacher can alleviate this load of tasks by involving other professionals and delegating some of the work to them. He reported that some writers, such as Chambers and Macdonough (1981) and Mackay (1983), have called for the division of these roles and the involvement of other professionals to take up some of them, such as course design.

Hutchinson and Waters (1987) also differentiated between ESP and general English teachers, summarizing the tasks that an ESP teacher is expected to carry out:

We have stressed a number of times the need to see ESP within the context of language teaching in general and this applies as much to the role of the teacher as to materials and methodology. Nevertheless, there are important practical ways in which the work of General English Teacher and ESP Teacher differ... It is likely that in addition to the normal functions of a classroom teacher, the ESP teacher will have to deal with needs analysis, syllabus-design, materials writing or adaptation and evaluation (p.158).

For these reasons and others, Robinson (1991) referred to an ESP teacher as a practitioner: "Because ESP teachers generally have a great variety of often simultaneous roles- as researchers, course designers, materials writers, testers, evaluators, as well as classroom teachers- the term practitioner will generally be used" (p. 1).

Another characteristic that an ESP teacher has to develop is flexibility. Although flexibility is highly desired in EGAP courses, it becomes a requirement in ESP. Strevens (1979, in McDonough, 1984) recommended this feature for effective ESP teaching:

Our profession becomes daily ... more complex, subtle, and sophisticated. We as teachers must learn to adapt, chameleon-like, to an even greater array of variables, so that we can offer to our students not a single technique which may or may not be effective, but the best possible choice of teaching for the particular variables that operate in our own students' circumstances (p.11).

Team work between the discipline subject teachers is another feature that is specific to ESP; the ESP teacher, therefore, should "be involved in team-work and seeks advice and cooperation with subject teachers" (McDonough 1984, p. 133).

Dudley-Evans and St John (1998) described an ESP teacher as a consultant who has an equal status as the learner, since the learner enjoys more knowledge in his subject specialism and the teacher knows more about the language. However, this is not without problems and challenges to an ESP teacher. A major challenge for an ESP teacher is the course content of the target discipline and the problem is not only a matter of knowing technical vocabulary, but also the knowledge of the subject, its discourse and genre. This is illustrated by Hutchinson and Waters (1987), who stated "the linguistic knowledge needed to comprehend the specialist text is little different from that required to comprehend the general text. The difference in comprehension lies in the subject knowledge, not the language knowledge" (p.161). Drobic (1978) stated that the situation can get more complicated in the following situation: "This problem of language teachers being unfamiliar with the subject matter of a particular ESP program can be further

magnified by having a group of students with considerable expertise in the subject” (p. 10). Hutchinson and Waters (1987) suggested an ESP teacher makes an effort to know the subject, but does not have to teach the subject. A teacher has the advantage of designing course materials in the target discipline that s/he can handle in terms of subject-knowledge. Using a culinary metaphor, the authors explained that it is not important to have all the necessary ingredients for a good meal if the cook cannot use them effectively. Hutchinson and Walters (1987) also suggested that ESP teachers design their teaching materials with a subject teacher. They suggested, however, that an ESP teacher keeps a positive attitude towards the subject and has some knowledge of its basic principles, which would allow him/her to interact with the students.

In the context of PBL, as with ESP, to cope with the problem of content, Fischer *et al.* (2008) recommended that PBL problem scenarios should be designed by a subject specialist and a language teacher. The claims that the language teacher should collaborate with the subject teachers may be supported. In tertiary education in which the subject of the learner becomes very detailed and profound in an area of knowledge and practice, it is hypothesized that it gets harder for the language teacher to facilitate, for instance, a medical scenario that demands thorough knowledge of medicine. The students’ production cannot be predicted in advance and students need feedback. While the English language teacher can provide feedback on linguistic issues, s/he may be unable to provide feedback on issues related to the subject matter when the topic is highly technical.

Other problems stated in the literature that relate to ESP are negotiation with sponsors about time and resources, but these are not discussed in this study as they are irrelevant to the academic context associated with this study.

10.11. Summary

In this section, it was argued that an inter-disciplinarian approach is needed to understand issues surrounding ESP, such as the specificity of the language and the requirements of the domain. From a didactic ergonomic view, the use of the knowledge from other disciplines to benefit language teaching was argued as desirable. The notion of migration or integration of concepts and ideas from other disciplines was also addressed

and it was suggested that these have to be homogeneous with language teaching. It is, therefore, appropriate to consider implementing problem-based learning into English for Academic Medical Purposes teaching.

Regarding the context associated with the PYHC, things seem different in many ways. Dudley-Evans and St John (1998) argued that ESP learners and practitioners have an equal status, one in language and one in the knowledge of the subject. This may be true if one thinks about one type of an ESP course in which the ESP students are practitioners in their field and they need to improve their English for different objectives, such as post-studies. However, in the context associated with this study, the students have little expertise in the subject area. These students need to know how to comprehend a text in their subjects and develop the knowledge of some concepts and terminology, which should help them start their medical course more efficiently; this was seen in the needs analysis in Chapter 4. Although the field of the learner was used as a resource combining content and language in the course designed for this study, extreme caution was applied to leave it in the hands of the ESP practitioner to monitor and facilitate learning (as a tutor should) in the PBL teaching approach.

In the following section, the applicability of PBL theory to EMP teaching is described, along with how PBL can provide the learners with contextual information related to their field to study the language naturally, and how PBL can combine language skills, content, and promote learning strategies.

Chapter 11: Problem-Based Learning

Methodology Implementation in EAMP

11.1. Defining Methodology

Hutchinson and Waters (1987) explained that theories of learning provide insight into how people learn and give rise to teaching methodologies:

It is the learning theory which provides the theoretical basis for the methodology by helping us to understand how people learn. It is also important to note that theories of learning are not necessarily confined to how people learn languages, but can refer equally to the learning of any kind of knowledge (p.129).

Tardieu (2008) reported that the term methodology appeared in the French official documents for Languages in the middle of 1980's. Although learning methodologies guide the teacher in his/her role, they are more oriented to the learners in the way they focus on finding the methods that enable them to learn better. So, methodology involves the selection of methods.

Même si ces méthodologies de l'apprentissage ont des implications directes sur l'acte d'enseigner et le rôle de l'enseignant. Les auteurs de ces textes se placent le plus souvent du côté de l'élève et s'interrogent sur les méthodes qui peuvent être enseignées à ces derniers pour améliorer leur apprentissage (p.124).

In accordance with this claim, Demaizière and Narcy-Combes, J.P. (2007) argued that a method is a part of methodology and stated that it can be implemented through different procedures. They made an insightful distinction between methodology and methods by placing methodology at a higher hierarchical level than method; Puren (1988, cited in Demaizière and Narcy-Combes J-P., 2007; 2) stated that a method is a set of techniques which help conduct an activity.¹⁹ They also defined methodology as a collection of methods, techniques, and procedures:

Un ensemble cohérent de procédés, techniques et méthodes qui s'est révélé capable, sur une certaine période historique et chez des concepteurs différents de générer des cours relativement originaux par rapport aux cours antérieurs (Puren, 1988 ; p. 17, cited in Demaiziere and Narcy-Combes J-P, 2007; p.2).

¹⁹ "[une] méthode [est] un ensemble de procédés et de techniques (...) visant à susciter (...) un comportement ou une activité déterminée" Puren (1988, cited in Demaizière and Narcy-Combes J-P., 2007; 2).

Methodology, therefore, encompasses methods and techniques and is based on theoretical principles and assumptions. Likewise, Tardieu (2008: 126) debated that in teaching, there can be no single method valid for all, but a methodology made up of a set of selected methods.²⁰ With reference to Descartes' definition of method, she asserted that a method is based on four principles: 'seeking the truth, dividing difficulties, logical progression from simple to more complex, and hegemony of the method'.²¹

In summary, theories should give rise to methodologies and make them epistemologically sound. They also underlie their basic principles. A methodology is a collection of methods whose main goal is to help learners acquire the language. It is useful to see it at a higher hierarchical level than a method. At this level, learners' and teachers' roles are defined and course materials are oriented to the use of specific methods. A method is a collection of techniques and procedures and should fulfill a definite task in order to carry out the course objectives.

This small introduction on methodology helped to determine the components that should be considered in this section to explain PBL as an alternative methodology. This chapter will provide an explanation for choosing PBL; a discussion of its epistemological foundations, and the concept of learning in PBL; the types of PBL approaches; its structure and methods of assessment; limitations and achievements of PBL reported by previous research; and a comparison of PBL and TBL to better understand the compatibility of PBL with language learning and the advantages it can bring to EAMP teaching, in particular.

11.2. The Rise of PBL

To start with, an understanding of what Problem-based learning (PBL) stands for is required. Savin-Baden and Major (2011) explained that PBL is a learner-centered

²⁰ « *En matière d'enseignement, il ne peut y avoir de méthode unique, valable pour tous, mais une méthodologie constituée de méthodes choisies* » Tardieu (2008: 126).

²¹ « *Un principe de recherche de la vérité ; un principe de division de la difficulté ; un principe d'ordre suivant une progression logique et non seulement chronologique- du plus simple au plus complexe ; un principe d'hégémonie de la méthode* » (Tardieu, 2008 ; p.125).

cognitive approach to learning that is based on solving problems and which aims at teaching both knowledge and skills. Donald R. Woods (1969) has been credited for coining the term problem-based learning and the first PBL learning experience which started in McMaster, Canada, in 1969, with a medical class of 19 students. In the early 1960s, the traditional teaching approaches in medical education were not able to meet the challenges. Memorization of knowledge did not allow preparing graduates with the necessary clinical skills required at work. Old methodologies started being questioned and the need for a change to adopt a new method of teaching arose; a methodology that is able to fulfill the goals required and prepare capable doctors with critical thinking skills.

The latter half of the century found medical education at another critical crossroads as it faced growing problems: the information explosion, the fragmentation of the curriculum, and the shortage of graduates with adequate problem-solving and critical thinking skills. Medical educators became increasingly concerned that memorizing propositional knowledge was not creating the long-term learning goals they held (Savin-Baden and Major 2011, p. 17).

Worries and uncertainties about the students' abilities, effectiveness, and efficiency in the medical field culminated in the 1970s and beginning of the 1980s. The notion of a student as a '*walking encyclopedia*' (Barrows, 1980) started to be refuted. Schmidt (1983) said:

One problem that, so far has attracted less attention pertains to the inability of students to make appropriate use of what they have learned. In a controlled trial Gonella et al. (1970) found that doctors and residents of a large general hospital were in 50% of cases unable to perform critical screening activities on patients that were suspected to have pyelonephritis. When tested on this subject by means of multiple-choice questions this same group performed quite well. Their mean score on this test was equal to 82% (p.11).

The evidence here shows that students possessing information about something does not necessarily mean they know how to retrieve the necessary knowledge in a particular situation and use it in the cases they face. The curriculum challenges to provide students with cognitive vocational skills were felt in different places across the world. Medical education was facing 'fierce' critics. People in the field were worried about 'information load' and called for the need to graduate 'capable citizens'. Boud and Feletti (2013) summarized Dornhorst's (1981), Engel's (1985), and Bishop's (1983) writings about the reasons for PBL; "what emerges are physicians without enquiring minds, physicians who bring to the bedside not curiosity and a desire to understand, but a set of reflexes that allows them to earn a handsome living" (p.3).

Examining the research context in this study and the results obtained in the needs analysis, one may determine how much the two situations are alike. For instance, what was the proposed remedy to cope with the problems of passive learning in McMaster University? Problem-based learning was considered an alternative methodology that could bring about the desired objectives. Through educators Barrows and Tamblyn (1976), McMaster helped bring PBL to the forefront of education. These are the two tutors that have set the foundations of the approach and established goals to meet the challenges of the job. Instead of lectures, students receive a ‘problem pack’. By the end of the course, these students have developed problem-solving skills, self-study skills, and motivation.

The crucial need for a change to meet global challenges, together with the success of the PBL approach at McMaster, encouraged other institutions to adopt the method. Soon, the approach spread to the Netherlands, Australia, and later to Europe, South and North America, and Asia. A third factor that helped widespread emergence is the development of information technology. Norman and Schmidt (1992) reported that PBL “has caused a small revolution in the medical education community. About 60 medical schools worldwide have adopted the method in whole or in part and others are in the process of doing so” (p. 557).

Rhem (1998) stated new reasons why PBL was revived towards the start of the new millennium, such as new world challenges and information explosion. He quoted Cavanaugh to explain the new global needs for the PBL approach in what it is able to bring about co-operation, responsibility, and deeper knowledge.

The Lone Ranger is gone,” says John Cavanaugh. That’s the second reason PBL’s time has come. “The way the world works now, it’s about working together.” What students learn about collaboration, different approaches to a problem, cooperation and responsibility, makes their learning in PBL courses multisided, richer, and, in that way, deeper (p. 4).

From the late 1960s until today, the approach has been used in different fields and has been modeled in a variety of ways. After its implementation in medical schools, the approach was adopted by other disciplines that are ‘health-related’ and by different fields like engineering, business, and architecture to extend more recently to arts and humanities. The very beginning of the twenty-first century marked the start of

considering the possibility of PBL in arts, humanities, and English language teaching. For instance, between 2001 and 2003, a Leonardo da Vinci project (i.e., LENTEC), launched learning English for technical purposes in six European countries in which PBL was used to improve the students' English language (Perkins, 2004). It has been reported that both facilitators and students were positive about the experiment, and this is discussed in detail when reporting previous practices and findings of the approach in Section 11.8.

11.3. The Conceptual Framework of PBL

11.3.1. Epistemological Foundations

Savin-Baden and Major (2011) tried to clarify the link between the core concepts of PBL and different learning theories. In so doing, they have drawn upon salient features of PBL and traced its conceptual framework. They showed how PBL fits into different learning theories, models, and concepts, which are summarized below. PBL is based on the cognitive learning theories that developed from the field of educational psychology in the 1940s, like Tolman's (1948) Cognitive Map Theory, in the early 1950s, Piaget's Individual or Cognitive Constructivism Theory, Vygotsky's Social Cognitive Constructivism Theory, as well as humanist theories. These theories gave rise to seminal ideas that shaped the features of PBL.

Savin-Baden and Major (2011) admitted that it would be surprising to talk about any connections between PBL and behaviorism, which is true when concepts of 'classical conditioning' are considered. They argued, however, that behavioral theories embraced by Thorndike 1905 which value the role of feedback in learning, practice, and setting goals, are closely related to PBL. It may be argued that the connection they establish does not seem to be sound because the concept of feedback in PBL leads students to reconstruct their knowledge (Piaget's theory) and modify their maps (Tolman's theory) as they learn. On the other hand, the notion of feedback in behaviorism is related to the concept of reinforcement and conditioning, which is discussed in the second section in Chapter 7.

PBL is deeply rooted in cognitive theories, which focus on understanding the learning process and were discussed in Chapter 7. Researchers in this area believe that

learning takes place when ‘pre-existing knowledge’ is activated and reconstructed in a way that is meaningful to the learner. In the learning process, gaps of knowledge act as learning issues for learners. Piaget’s cognitive constructivist theory and Tolman’s theory (1948) of maps and gaps, for instance, view activation of previous knowledge a necessary step in learning. They also advocated that learning happens through ‘*accommodation*’, as Piaget called it, or ‘*modifying the maps*’ as Tolman labeled it.

The same idea of learning can be traced back in Wertheimer’s (1923) cognitive theory. Savin-Badin and Major (2011) depicted the association of this theory with learning in PBL. This theory emphasized the importance of gaps in knowledge construction; learners have to see the ‘overall structure’ while solving a problem and identifying gaps. These gaps motivate learners to find the missing information necessary to complete the puzzle and get the overall picture. In problem-based learning, “gaps become learning issues for students who must explore them in order to make progress towards finding viable solutions to the real world problem situation” (Savin-Badin and Major, 2011; p. 25).

Savin-Badin and Major (2011) also drew a link between PBL and Ausbel’s (1978) *Assimilation Theory of Learning*. Ausbel, another cognitive scientist, discussed the ideas of the overall picture as well as the importance of meaning in learning; students learn best when they see meaning in their learning. Norman and Schmidt (1992) explained that, in PBL, when students work on a problem that they find meaningful, they show interest in learning that positively impacts their motivation. They stated that “students’ intrinsic interest in subject matter, with a consequent impact on the motivation to learn, may also be enhanced by PBL” (p. 558). Motivation is a key factor in learning, in general, as well as in L2 learning. It also has a direct impact on students’ language learning autonomy, as it was discussed in Chapter 8. Research (See section 11.8 – ‘previous research and findings in PBL’) has shown that PBL increases students’ motivation to learn in medicine as well as in language learning.

Like Piaget, Tolman (1948), and Wertheimer (1959), Vygotsky (1978) believed that students construct their knowledge while learning. However, Vygotsky emphasized the importance of the social factor in the learning process in his theory, the Social

Cognitive Constructivism Theory. In line with this theory, PBL posits that learning takes place when the learner interacts with his/her environment; learners learn when they interact and collaborate together, as “cognitive conflict stimulates learning and knowledge occurs when students negotiate social situations and evaluate individual understanding” (Savin-Badin and Major, 2011, p. 30). This view has been maintained in PBL, as well as in English language learning.

The importance of interaction and collaboration with other learners during learning is embodied in team-work, which is a cornerstone of PBL; a team is a group of learners who co-operate together to reach a common goal. Co-operative learning sought through group work is a concept that is also valid for language learning as well. Savin-Badin and Major (2011) argued that, contrary to Vygotsky’s Zone of Proximal Development (ZPD), “the learner’s proximal zone is extended, and learning often exceeds what tutors and students originally deemed probable or possible” (p.26). Even though students may reach their potentials through this approach and that they might surprise the facilitator with the knowledge they acquire, one should be very cautious about this claim. In fact, Vygotsky’s ZPD means learners have to be challenged with new knowledge that they can cope with and that can reasonably challenge them. In PBL, Schmidt (1983) advanced the claim that the problems should neither too simple nor too complex to allow learning to take place: “Problems should have a degree of complexity adapted to students’ prior knowledge. If a problem is not complex enough it will not be recognized as a problem. If it is too complex, students will think that it is no use trying to solve it” (p. 15).

This is also true for language learning as well as ESP; Raby (2003) referred to this condition as the *‘ideal input for the learner’*. With reference to Vygotsky’s ZPD, she argued that when students work on their own, if they fail to choose a text related to their level (i.e., either too easy or too difficult), students are more likely to learn very little or learn nothing.

Virginie Zampa partait d’une idée assez simple : dans le travail en autonomie en anglais de spécialité, les étudiants rencontrent des difficultés à sélectionner des documents qui correspondent à l’input idéal pour leur permettre de progresser. Selon elle, s’ils choisissent un texte qu’ils comprennent facilement ou, à l’inverse, un texte

qu'ils ont les plus grandes difficultés à comprendre, cela signifie que ces textes sont soit trop proches, soit trop éloignés de ce qu'ils connaissent déjà et qu'ils n'acquièrent que peu ou pas de connaissances supplémentaires (Raby 2003. p.69).

To avoid this problem of learning little or nothing, learners should be challenged with reasonably difficult input. This is in accordance with Krashen's (1982) 'i+1' theory. In the field of didactic research, the following statement provides a comprehensive description of the input to ensure its relevance to the learner in terms of difficulty, learner's need, and learning outcome: Demaizière et Narcy-Combes, J.P. (2005; 54) recommended that 'the input should be checked in its adaptation to the learner's interest, relevance, consistency, authenticity, the meaning it brings, and the feasibility of the tasks that it allows'.²²

This is the reason for caution in designing the materials that are taught to students in the action research associated with this study, taking into careful consideration learners' ability levels and problem-solving demands. This will also impact the choice of the right type of the PBL approach to help them thrive and keep them on task.

In line with Vygotsky's ZPD is the *Experiential Learning Theory*. In PBL, students are highly involved. They have to sort out a situation that should be very similar to a case they would be presented with in their professional life, which helps them get a 'virtual experience'; an experience they are supposed to acquire at work in real life, but they do acquire it by simulation. Kolb and Kolb (2005) defined experiential learning as a cyclical process in which experience leads to reflection and action and is desirable for ESL learning.

Experiential learning is a process of constructing knowledge that involves a creative tension among the four learning modes that is responsive to contextual demands. This process is portrayed as an idealized learning cycle or spiral where the learner "touches all the bases"—experiencing, reflecting, thinking, and acting-in a recursive process that is responsive to the learning situation and what is being learned. Immediate or concrete experiences are the basis for observations and reflections. These reflections are assimilated and distilled into abstract concepts from which new implications for action can be drawn. These implications can be actively tested and serve as guides in creating new experiences (Figure 1). ELT proposes that this idealized learning cycle will vary by individuals' learning style and learning context (p. 2).

²² "L'input: on vérifiera son adaptation à l'apprenant, son intérêt, sa pertinence, sa cohérence, son authenticité, les possibilités de traitement du sens qu'il apporte, et la faisabilité des tâches qu'il permet" (Demaizière et Narcy-Combes, J.P., 2005, p. 54).

As indicated so far, the importance of ‘experience’ in learning has its roots in the cognitive constructivist theories posited by Piaget, Kolb, and Vygotsky. It finds ground in older theories like Dewey’s (1938) theory of experiential and active learning. Savin-Badin and Major (2011) argued that learning is associated with the “*growth of experience*”.

Dewey believed in education as a process of continuous reconstruction and growth of experience. He believed that the role of the teacher was to organize learning activities that built on the previous experiences of the students and directed them to new experiences that furthered their growth, and that the curriculum should be closely tied to the students’ experiences, developmentally appropriate and structured in ways that foster continuity (p. 31).

Like cognitive theories, humanist theories have influenced learning in general. Both English language learning and PBL have drawn upon these theories. For the humanist theories, the learner functions as a whole; both intellect and affect are involved and s/he is a doer and a thinker. Bertin (2000) explained from a didactic ergonomic perspective, “Une tradition humaniste qui voit l’Homme un être d’action et de réflexion, acteur du progrès, et refuse de le subordonner a une évolution dont il serait l’objet plus que le sujet” (p. 16). Similarly, PBL considers learning to be effective when the learner takes control of the situation and functions fully as a whole, ‘not only the intellect’, a condition that enables self-development. In the context of language learning, Arnold (1999) stated that “when both [cognitive and affective sides] are used together the learning process can be based on a firmer foundation. Neither the cognitive nor the affective has the last word, and indeed, neither can be separated from the other” (p.1). PBL takes into account the learner’s affect and intellect. It allows the learner to work at his/her own pace and to work on his/her real life issues; it takes into account the learner’s intrinsic needs and it is self-directed. This makes PBL compatible with the view of learning and language learning advocated by theories of complexity, such as DST, and, eventually, the view adopted in this study.

In terms of cognitive psychology, in particular, in ‘*the psychology of memory*’, Norman and Schmidt (1992) showed the parallel between the learning process in PBL and the information processing model. According to this model, just like in PBL, acquisition of knowledge is based on three principles:

Activation of prior knowledge facilitates the subsequent processing of new information. A maxim of cognitive psychology is that prior knowledge about a subject determines to a large extent what people can learn about that subject...

Elaboration of knowledge at the time of learning enhances subsequent retrieval. The memory of subject matter and the ability to use the knowledge is enhanced when students have the opportunity to elaborate on the knowledge at the time of learning. Elaboration can take several forms- discussion, note-taking, answering questions, or using the knowledge to understand the problem.

Matching context facilitates recall... (Norman and Schmidt, 1992, p. 559)

In the discussion of language and learning in Chapters 6 and 7, the importance of context in ESP discourse and register, in particular, were also described. Context is a key issue for general or specific language learning as well as in PBL. In PBL, another dimension of context is also expounded. As Norman and Schmidt (1992) explained, context is seminal to helping the learner activate and use his/her previous knowledge; “one factor that influences retrieval of knowledge is the provision of context similar to the context at the time of learning” (p. 558).

The PBL tutorial structure reflects these three components, as it was previously discussed. The first stage in the tutorial starts with activating students’ schemata; the discussion of the problem scenario among peers requires negotiation of meaning, discussion, and thinking. The problems are designed in a way that matches the context of the learners’ professions so that when they find themselves in a similar situation, context helps them retrieve the information more rapidly and efficiently. Here the reader is reminded that in the needs analysis in this study, language students learn and forget due to the ways they learn the language. Here, it is argued that PBL, due to its structure, can provide a remedy to this issue.

Looking at these three factors together, it is evident that the PBL tutorial structure is based on the psychology of memory. The interest in this study is finding alternatives to rote memorization that typically occurs among students by studying memory and what enhances its use, which partially explains why PBL could be a remedy for the students within the institution included in this study.

Savin-Badin and Major (2011) argued that PBL fits into other learning theories and models, such as Andragogy, a theory developed by Knowles (1980). In its emphasis

on the self and self-directed learning and intrinsic needs, Knowles' model (1978) suggested that self-directed learning requires a change in "self-concept, experience, readiness to learn" and "orientation towards learning" (p. 31). Knowles' (1984) extended this model to include motivation and the need to learn. Knowles et al. (2005, cited in Dulport & Whitcombe, 2010) advance the claim that "adults are ready to learn those things they need to know to cope with their life situations or human needs" (p. 28). Barrows (1986) defined self-directed learning in PBL as students "being able to extend on or improve their knowledge base to keep contemporary in their eventual field of medicine and to provide appropriate care for the new or unique problems they may face in their work. This is self-directed learning." (p. 482). This implies that students should be able to update themselves with knowledge in their field and be able to depend on themselves to build new knowledge or learn something new. This refers to being life-long learners and being autonomous and responsible for one's own learning or development. Barrows (1986) also explained that this has to do with knowing how to use the resources properly, such as the library. He added that self-directed learning is achieved only if "the knowledge and skills that have been newly acquired through self-study are properly encoded in memory for subsequent recall and use" (cited in Norman & Schmidt, 1992, p. 558).

This is another argument that supports the choice of PBL to cope with students' poor learning strategies and leads them to become autonomous language learners. In terms of content learning, PBL encourages students to build useful knowledge in their field of studies. This also has to do with the notion of content discussed in ESP, Chapter 10.

11.3.2. PBL Learning Principles

PBL developed its principles out of all the aforementioned learning theories. Barrows and Tamblyn (1980) summarized these principles as follows: student-centeredness, active learning, the focus on process, authenticity of problems, cooperative learning, interpersonal skills development, and the role of the tutor as a facilitator.

- Complex, real world situations that have no one 'right' answer are the organizing focus for learning.
- Students work in teams to confront the problem, to identify learning gaps and to develop viable solutions.
- Students gain new information through self-directed learning.
- Staff act as facilitators.
- Problems lead to the development of clinical problem-solving capabilities (p. 4).

Despite changes that PBL has undergone throughout the decades, these principles have remained the basic foundations of PBL. To illustrate, the learning principles in PBL that were later attributed to PBL may be cited. That is, Boud (1985, cited in Savin-Badin & Major, 2011) denoted these principles, such as the focus on experiential learning; the development of cognitive and social skills; interdisciplinarity; focus on the process rather than the product; delegation of old teacher's roles, such as assessment to the learners;

1. An acknowledgement of the base of experience of learners
2. An emphasis on students taking responsibility for their own learning
3. A crossing of boundaries between disciplines
4. An intertwining of theory and practice
5. A focus on the process rather than the products of knowledge acquisition
6. A change in the tutor's role from that of instructor to that of facilitator
7. A change in focus from tutors' assessment of outcomes of learning to student self assessment and peer assessment
8. A focus on communication and interpersonal skills so that students understand that in order to relate technical expertise their knowledge they require skills to communicate with others, skills that go beyond their area of technical expertise (p. 4).

These principles are echoed in other works, such as Dochy *et al.* (2003, cited in Kang *et al.*, 2009):

- Student-centered learning
- Small group learning.
- The tutor as a facilitator or guide
- Authentic problems as the first step of learning
- Problems that are representative of important and commonly occurring professional situations
- Use of authentic problems as a vehicle to teach required knowledge and skills
- Acquisition of new knowledge through self-directed learning (Dochy et al., 2003, cited in Kang et al. 2009, p. 44)

In the statement above, Dochy put focus on the authenticity factor in PBL, which we already described as a seminal requirement in ESP. Authenticity emerges as a major principle in PBL which fulfills a key requirement in ESP.

- **PBL favors differences of opinions and creates a room for analysis and discussion of facts between the learners**

Problem-based learning is an active learning method based on the use of ill-structured problems (i.e. not all the information is given) as a stimulus for learning (Barrows, 2000). In PBL, students have the opportunity to develop skills in reasoning and self-directed learning (Hmelo-Silver& Barrows, 2006).

Ill-structured problems are complex problems that cannot be solved by a simple algorithm. Such problems do not necessarily have a single correct answer but require learners to consider alternatives and to provide a reasoned argument to support the solution that they generate (p.22).

PBL, therefore, favors the process over the product in learning. Students have the chance to analyze, discuss, and negotiate meaning, dig for knowledge, and make decisions. Hmelo-Silver (2004) defined PBL as “an instructional method in which students learn through facilitated problem solving. In PBL, students’ learning centers on a complex problem that does not have a single answer” (p. 238). As opposed to other methods of teaching in which the outcomes of students’ activities are assessed as right or wrong, problems in PBL have no single answers.

- **PBL favors active learning**

In PBL, learners are viewed as doers and thinkers, a view which coincides with cognitive theories of learning. The statement below infers that PBL engages learners in learning. Unlike traditional approaches in which the student’s role is limited to answering given questions, PBL students are cognitively engaged in learning through a problem scenario.

The approach adopted at McMaster marked a clear move away from problem-solving learning in which individual students answer a series of questions from information supplied by a lecturer. Rather, this new method they [Barrows and Tamblyn] proposed involved learning in ways that used problem scenarios to encourage students to engage themselves in the learning process (Savin-Baden and Major, 2011; p. 3).

- **In PBL, the students explore the knowledge they need and are trained to become responsible for their learning**

Savin-Badin and Major (2011) explained that students in small teams would explore a problem situation, and, through this exploration, are expected to examine the gaps in their own knowledge and skills in order to decide what information they need to acquire in order to resolve or manage the situation that they were presented with.

Eventually, the students have the opportunity to learn about themselves by identifying their knowledge gaps. Crucial questions the students need to ask is ‘what information don’t I know’ and ‘what information do I need to know’. These learning issues are the starting point for students to learn. The problems are deeply related to the world of the learner. The students, therefore, engage in exploring and understanding issues related to their needs, whether in life or at work. The facilitator gradually trains the students through various PBL tutorials to become responsible for their own learning.

- **In PBL students work in teams**

Savin-Badin and Major (2011) explained that the word team implies that students are committed, cooperative, and dedicated to achieve a common purpose. The team in PBL is well organized. Various authors on PBL (e.g., Aydinli, 2007; Boud & Fellitti, 2013; Savin-Badin & Major, 2011) agree that, ideally, the team is made up of seven members who take turns to be a leader of the team or manager, a secretary or a scribe, or an ordinary team member.

11.3.3. PBL Learning Goals

Hmelo-Silver (2004) summarized the learning goals of PBL as follows: “The goals of PBL include helping students develop 1) flexible knowledge, 2) effective problem-solving skills, 3) Self-Directed Learning (SDL) skills, 4) effective collaboration skills, and 5) intrinsic motivation” (p.235). She argued that learning in PBL is based on experiential learning following certain strategies: “PBL is focused, experiential learning organized around the investigation, explanation, and resolution of meaningful problems” (p. 236). PBL, as an approach, provides the learner with different strategies that allow his/her knowledge construction to happen. Thus, PBL distinguishes itself as one of the “instructional approaches that situate learning in a meaningful task, such as case-based instruction and project-based learning...It has a dual emphasis on helping learners develop strategies and construct knowledge” (Hmelo-Silver, 2004, p. 236).

Norman and Schmidt (1992) reported that PBL is meant to develop students’ self-directed learning skills, enhance their clinical reasoning, increase knowledge acquisition, retention, and use, bridge the gap in use between basic sciences and clinical sciences, and

positively impact students' motivation. They explained that, in PBL, students are given a problem and are required to provide explanations for a situation, but they are not supposed to be able to fully understand the situation unless they find the information that helps them to do so. Questions arise and gaps of knowledge become learning issues. Meanwhile, students learn how to learn and develop self-directed learning skills. Another goal of PBL is to help students develop "clinical reasoning or problem solving skills" (p. 558) through exposure to real life problems similar to those they will encounter in their future field work. A third objective is "to enhance acquisition, retention and use of knowledge" (p.558). The authors explained that this is possible because knowledge is acquired through simulation in a meaningful context for the learner. The students will use knowledge from the basic sciences and the clinical sciences in combination with one another, thus narrowing the gap between the two subjects. Students' intrinsic interest is enhanced, as students see meaning in their learning. This has a direct impact on their motivation to learn. Boud (1999) stated that PBL seeks to prepare autonomous life-long learners with analytical skills:

The notion of PBL is not new, nor is it unique to the health sciences despite their major contribution to its origins and literature. PBL in its very many manifestations does, however, attempt to link a sophisticated analysis of professional practice to a humanistic technology of education, to develop highly competent practitioners who will continue to work effectively throughout their lives (Boud, 1999, p. 6).

This definition highlights the cognitive aspect in learning in PBL; learners develop analytical skills during and after their studies through PBL. It also draws on an important achievement of this methodology, which is enhancing students' autonomous learning. Students develop the strategies and skills that make them life-long learners. This is the same goal that this study aims to achieve with the students included in this study, which will overcome the problem of learners' dependency on teachers and passive learning.

In conclusion, the learning concept of PBL is compatible with learning knowledge as well as language skills and micro-skills/ strategies associated with ESP learning discussed in Chapter 10. This justifies the choice of this methodology to manage the learning needs of the students from the institution included in this study.

11.4. A New Approach: Changing Roles and Responsibilities

The discussion above has already set the picture of PBL learning and it is expected that a change in the concept of learner/ teacher should match the goals and principles of this methodology. This notion of PBL, as a student-centered learning approach, definitely brought new meaning to the roles attributed to both students and teachers.

11.4.1. The facilitator's Role

In PBL, many of the teacher's traditional tasks are delegated to the learner who has to gain self-directed skills, grow autonomously, and become responsible for his/her own learning. In PBL, the tutor acts as a facilitator; s/he is no longer the source of information or the only decision-maker. Hmelo-Silver (2004) defined the word facilitator in PBL:

In PBL, the teacher/ facilitator is an expert learner, able to model good strategies for learning and thinking, rather than an expert in the content itself. The facilitator scaffolds student learning through modeling and coaching, primarily through the use of questioning strategies (p. 245).

Hmelo-Silver (2004) explained that the role of scaffolding is graded according to students' experience. The more experienced they become, the less scaffolding they have. The facilitator has also to monitor the group process and encourage all team members to actively take part. S/he also has to induce students to assess their peers' work and their own work. This is in line with cognitive and social constructivism forwarded by Piaget and Vygotsky. Powell (2006) reported that "both Piaget and Vygotsky agreed that the teacher's role was that of a facilitator and guide, and not of a director or dictator"(p.54).

Savin-Badin (2003) asserted that this is a new relationship in which teachers are no longer *'patrollers of knowledge'*. To become a facilitator is to undergo a whole process, to shift and direct one's old assumptions about teaching from being a controller to becoming a guide. Below is a detailed explanation of the facilitator's role presented by Hmelo-Silver and Barrows (2006):

This role is critical, as the facilitator must continually monitor the discussion, selecting and implementing appropriate strategies as needed. As students become more experienced with PBL, facilitators can fade their scaffolding until finally the learners adopt much of their questioning role. Student learning occurs as students collaboratively engage in constructive processing. The dilemma for the facilitator is to provide affordances for this constructive processing (Hmelo-Silver and Barrows, 2006, p. 23)

In the PBL tutorial, the tutor provides scaffolding and guidance. However, this guidance has to diminish little by little, as the students get more expertise, learn how to proceed, gain the required skills and strategies, learn how to learn, and come to know how to sort out a problem themselves. The same point was made by Barrows and Tamblynn (1980), who confirmed that facilitators and students have to work together toward learner's independent learning in PBL.

In this method, the student determines what he needs to know. Although the teacher may have considerable responsibility, in the beginning by providing the student with the necessary experience and guidance, it is expected that the student will eventually take full responsibility for his own learning. The emphasis is on active acquisition of information and skills by the student, depending on his ability to identify his educational needs, his best manner of learning, his pace of learning, and his ability to evaluate his learning. The teacher is available for guidance until the student gains full independence (Barrows and Tamblynn, 1980; p. 172).

From this statement, it may be deduced that the facilitator has a mission to accomplish in the PBL approach and a goal to attain; which is coaching the students with the aim of helping them gain full independence for their learning. Scaffolding plays a very important role in students' guidance, though it has to be graded to leave room for the learner to take over the learning operation and gain autonomy. Regarding the learners, they are expected to learn actively and develop the required skills to attain this goal. They do so by learning how to identify their learning gaps, and, therefore, their needs; they also learn about their own learning, such as their pace of learning. They also develop the ability to assess their own work, gain expertise, and become life-long learners. Poikela (2005) made the following analogy to summarize this view: "In earlier days, the teacher was sitting alone in a fully loaded boat almost sinking, and the poor teacher was trying to row with the last energy he had. After PBL, the tutor is sitting in a boat with a group and guiding while others are rowing and eagerly looking ahead" (p. 189). This statement emphasizes students' centeredness and their own input in the work that PBL requires, but it might give the illusion that the teacher's role as a PBL facilitator is easier. It is just a different role. Guidance and mentorship require an alert facilitator who is aware of every

single detail going on during the tutorial. S/he should be able to interfere at the right time to direct the students; to help them become critical; achieve the real goals of PBL and prepare critical minds.

Hockings (2004) conducted an action research project in which he had helped a math teacher become a facilitator over 18 months. The results have shown that changing roles is a real challenge, as it does not only require a teacher's change in epistemological stance and strategies, but it also necessitates overcoming stress and coping with other problems that might arise.

We had focused on change at the deeper levels of epistemology, conceptions and strategies. I had anticipated that this would be enough to bring about a change in pedagogy. However I overlooked the support he needed to develop facilitating skills and I underestimated the level of stress that changing his approach to teaching under difficult conditions (for example very large groups) created. These factors, together with his limited confidence in problem-based learning, may have been enough for him to revert to traditional practices (Hockings. 2004, p. 79).

Savin-Baden (2003) worked on a four-year-project implementing PBL in a range of departments and shared tutors' experiences in their transition from being lecturers to becoming facilitators. The experiment showed that it was challenging for many of them. This was primarily difficult for teachers who believed it was their role to provide knowledge. These teachers faced difficulty getting trained to switch roles with students and give them the opportunity to bring in their own information. Other teachers felt they were losing control of the learning situations by accepting that the learners challenge them with other possible solutions to a problem, each of which must be accepted since there is no wrong or right answer in PBL.

This is a challenge to many, since it invariably demands recognition of a loss of power and control when moving towards being a facilitator... for many tutors it involves letting go of decisions about what students should learn, trusting students to learn for themselves and accepting that students will learn even if they have not been supplied with a lecture or handout (p. 36).

This claim is further replicated in Knowles (1975, cited in Neville, 1999) who reported that it had been difficult for him to take up the new role of a facilitator.

A fundamental and terribly difficult change in self-concept in moving from 'teacher' to 'facilitator of learning... It required that I focus on what was happening to the students rather than on what I was doing. It required that I divest myself of the protective shield of an authority figure and expose myself as me - an authentic human being, with feelings, hopes, aspirations, insecurities, worries, strengths and weaknesses. It required that I extricate myself from the compulsion to pose as an

expert who had mastered any given body of content and, instead, join my students honestly as a continuing co-learner (Knowles 1975. cited in Neville 1999).

Becoming a facilitator is a concept that does not only require a change in teachers' roles, but also in teachers' concepts of learning. Three new characteristics of a facilitator may be deduced from this excerpt: 1) The main focus of the facilitator is what the students are doing, 2) loss of authority in terms of content and information, and 3) becoming a co-learner. Knowles (1975) delineated seven roles of a facilitator from an andragogical perspective and explained how s/he can help learners gain self-directed learning skills, including providing the right atmosphere to learners to learn and giving them with feedback:

- (1) Climate setting: helping the learners become acquainted with each other as persons and as mutual learning resources, develop the skills of self-directed learning and understanding the role of the tutor;
- (2) Planning: deciding on how tutorials will run and how tutorial process and function decisions are to be made;
- (3) Designing needs for learning: consideration of how the tutor can frame content objectives so that students can take ownership of the learning process and compare their existing knowledge with the required objectives;
- (4) Setting goals: helping the students translate the diagnosed needs into clear, feasible learning objectives;
- (5) Designing a learning plan: helping the students design their learning plans, develop strategies for accessing resources etc.;
- (6) Engaging in learning activities: whereby the tutor considers what part of the learning should be his/her responsibility and what the students should be responsible for, collectively or individually;
- (7) Evaluating learning outcomes: how to give constructive feedback to the students so as to enhance the self-directed learning process. (Knowles, 1995, cited in Neville 1999, p. 393)

Savin-Badin (2003) debated that balance in students' guidance is the key for effective facilitation. Teachers are often confused about how much freedom they should give to the students or guidance and that moderation is the key;

There needs to be a balance [...] so that the facilitator can be part of the team discussion in ways that the students themselves value. Not engaging in debate can be taken, by some students, as disinterestedness or a belief that the facilitator is not prepared to express their own opinion and thus remain a voiceless participant [...] thus effective facilitation demands that we deconstruct the assumptions and practices of our pedagogies and that we are also prepared to have a voice and, where necessary, challenge students to raise issues (p.50).

These changes in the teachers' roles imply changes in the learners' roles, as detailed below.

11.4.2. The Learner's Role

Unlike traditional methodologies, in PBL, students are active learners who develop various learning strategies: cognitive, social, and affective. Savin-Badin and Major (2011) summarized this shift in students' roles in PBL as follows:

1. from passive listener, observer and note taker to active problem solver, contributor and discussant;
2. from a private persona taking few or no risks to a public person who takes many risks;
3. from attendance dictated by personal choice to attendance dictated by community expectation;
4. from competition with peers to collaborative work with them;
5. from responsibilities and self-definition associated with learning independently to those associated with learning interdependently; and
6. from seeing tutors and texts as the sole sources of authority and knowledge to seeing peers, oneself and the community as additional and more important sources of authority and knowledge (adapted from MacGregor 1990) (Savin-Badin and Major, 2011, 82).

In addition, the students are supposed to take over many roles from the teacher: They engage in co-teaching with their peers and they are expected to have their own input and contribute to the lesson. They also actively take part in assessments, whether self-assessment or the assessment of their peers. Savin-Badin (2003) recommended that the students get involved in the assessment process and learn how to perform evaluation; "It is vital to de-mystify assessment criteria and help students to become stakeholders in the assessment process. One way of doing this is to ask students to develop their own marking criteria, because they will then understand what the process of grading involves" (p. 111).

This evaluation process is one of the roles assigned to the learner during the PBL tutorial. Below, the PBL tutorial structure that will bring more insight into the learners and facilitators' roles will be examined. Self-evaluation is one of the indicators of autonomy, as stated in Chapter 8.

11.5. PBL Course Description

11.5.1. The Problem Scenario in PBL

The most important role of the problem is to engage the students in the cognitive learning process. To achieve this goal, Sockalingam and Hmelo-Silver (2011) suggest the problem has to possess the following features:

To foster flexible thinking, problems need to be complex, ill-structured, and open-ended; to support intrinsic motivation, they must also be realistic and resonate with the students' experiences. A good problem affords feedback that allows students to evaluate the effectiveness of their knowledge, reasoning and learning strategies. The problems should also promote conjecture and argumentation. Problem- solutions should be complex enough to require many interrelated pieces and should motivate the students' needs to know and learn (p. 244).

What are the different types of problems and problem scenarios? Fischer et al. (2008) stated that problems can vary from simple to complex, but they did not really elaborate on problem typology. They described the PBL tutorial process, which matches the pure PBL approach. According to them, the problem can take many forms from a simple illustration or a single research question to a more elaborate description, such as a case study scenario. A small group of students (teams of three to five students) explore the problem; the students identify what they already know and what they need to learn. Then they search for knowledge in a systematic way using modern technology. In the last step, the teams integrate their ideas and present a possible solution to the problem in their written reports and oral presentations.

For Schmidt and Moust (2000, cited in Savin-Badin & Major, 2011), the word 'problem' refers to different types of case-based instruction carried out by the learner. They provided a taxonomy of types of problems. However, they used the word tasks to describe the type of outcome associated with the problem-scenario.

<i>Problems</i>	<i>Problems of explanation (What is going on here?)</i>
<i>Strategy tasks</i>	<i>'What if task'. "What would you do?"</i>
<i>Action tasks</i>	<i>Doing an activity, for example, interviewing business leaders</i>
<i>Discussion tasks</i>	<i>Tasks that focus on students' opinions</i>
<i>Study tasks</i>	<i>Tasks that can be done by an individual and do not require group discussion</i>

Table 7; *Problem typology (Schmidt and Moust, 2000, cited in Savin-Badin and Major, 2011, p. 64)*

Savin-Badin and Major (2011) added another type of problem to this taxonomy, “*fact-finding problems*”, whereby the student is encouraged to find out about facts and contribute to learning with his/her own input. There is no one single way to approach an issue or a single answer to a problem.

It seems that not all these types of problems can meet the criteria of problems, as originally advocated by PBL pioneers. Even labeling them as tasks brings about more existing confusion between the task-based and problem-based approach. ‘*Action Tasks*’, ‘*Problems*’ and ‘*Study Tasks*’, outlined in the table above, are similar to tasks in Task-based Learning, (TBL); they are real-life communicative activities.

‘*Discussion Tasks*’ and ‘*Fact Finding Problems*’ can be merged together. In fact, for a problem in which students have to discuss something, they also need to find out facts and data that can support their opinions. An example is the following topic: “*should we vaccinate children or should we not?*” This creates a point of controversy in medicine, but students cannot have an answer to this question or defend it before they go through the traditional PBL processes of planning, identifying gaps of knowledge, searching for information (fact finding), and coming to a decision that might be different from their peers. This, again, can open doors for further discussions and negotiations between the group members and between different groups.

‘*Strategy Tasks*’ are the closest to what may be called problems if the problem scenario can meet the criteria of the problem-based approach. The choice of the topic for a problem scenario and the ‘what if’ is the main issue as it is the fact that leads the learner to situate /him/herself into a situation which will trigger learning. If students are really provided with a hypothetical question that stimulates their thinking and have to go

through all the steps of the PBL tutorial presented above, then the potential of the approach may be reached.

11.5.2. Types of PBL

Nowadays, there are a variety of PBL models. This is possibly due to the flexibility of the approach and the potential of its implementation in different contexts, as Savin-Baden and Major (2011) argued:

There are no narrowly defined characteristics of problem-based learning. Instead there are people in contexts using problem-based approaches. Problem-based learning is an approach to learning that is affected by the structural and pedagogical environment into which it is placed, in terms of the discipline or subject, the tutor and the organization concerned (p. 8).

Barrows (1986) explained that the approach can be varied like “*a genus*”, with species and subspecies and that can vary endlessly. Barrow’s taxonomy encompassed six different variations starting from *the lecture-based problem* to the *closed-loop problems*. What differentiates one type from another seems to be the amount of help the students would or would not get in a PBL-based course. Barrows (1986) used the word case and problem interchangeably, though the term problem scenario is preferred to avoid any confusion between the case study approach used mostly in business and the problem-based approach.

- Lecture-based cases: here students are presented with information through lectures and then case material is used to demonstrate that information.
- Case-based lectures: in this instance students are presented with case histories or vignettes before a lecture that then covers relevant material.
- Case method: students are given a complete case study that must be researched and prepared for discussion in the next class.
- Modified case-based: here students are presented with some information and are asked to decide on the forms of action and decisions they may make. Following their conclusions, they are provided with more information about the case.
- Problem-based: in this instance students meet with a client in some form of stimulated format that allows for free inquiry to take place.
- Closed-loop problem- based: this is an extension of the problem-based method, where students are asked to consider the resources they used in the process of problem solving in order to evaluate how they may have reasoned through the problem more effectively (Barrows, 1986, p. 8).

This variety in the approach allows for different ways of adapting and implementing PBL within curricula. From medicine to literature, PBL has had to fit within the new disciplines and subjects to gain flexibility across the educational

spectrum. This has given rise to different sorts of the approach. According to Savin-Baden and Major (2011), there are two major models of PBL: The Pure Model and the Hybrid Model.

The argument here is that either the whole curriculum is problem-based and is modeled on the McMaster version of problem-based learning, whereby students meet in small teams and do not receive lectures or tutorials; or it is the hybrid model, which is usually defined by the inclusion of fixed resource sessions such as lectures and tutorials which are designed to support students. Lectures may be timetabled in advance or may be requested by the students at various points in the module or program (p. 37).

The pure model requires a committed, experienced facilitator as well as experienced and motivated students. This model reflects learners that this approach aims to develop; after a period of guidance is provided to learners, they grow responsible for their learning, become self-dependent, and, eventually, can cope with the pure type. If the learners are not familiar with the approach and they have not possessed the required skills and strategies yet, they cannot be thrown into this model of PBL. This argument can be backed up by examples about PBL limitations in Section 11.6.

It seems that the hybrid approach, as Savin-Badin and Major (2011) labeled it, or foundational approach, as Aydinli (2007) called it, is more relevant to inexperienced students, such as the context associated with the present study. That is, it is meant to offer help and guidance as it is needed. Conway and Little (2000) advanced the claim that PBL can be classified as either an ‘instructional strategy’ in which PBL is seen as a pedagogical approach that can be mixed with other teaching approaches or as ‘a curriculum design’ where PBL is integrated into both curriculum design and learning. In the context of curriculum design, Barrett (2005) sees PBL as a whole institutional policy.

This study did not involve implementing this broad meaning of PBL at an institutional level. The interest was in implementing PBL in the teaching of EAMP. In addition, it will not be feasible in the current study to use the pure PBL approach. The reason is that adopting PBL in the context associated with this study, at least for English language teaching, is a shift in epistemological stance and pedagogical practice for students who have the habit of being spoon-fed and who might find it challenging to take over the tutor’s roles. In addition, learners’ attitudes towards leaning, as indicated by the

needs analysis, raises the question about whether the students who are not used to working outside the classroom can easily adopt a radical shift in their view of learning. In terms of language abilities, the students do not appear to have the tools to ‘row the boat’ themselves, but this study might open doors for them to gain some familiarity with the approach and allow them to do so in the future, both slowly and safely. To be on the safe side, it was considered important to start implementing PBL in a mixed approach (a compatible approach with PBL practices), an ‘instructional strategy’ as classified by Conway and Little (2000). This type is in line with the first type included in Barrow’s (1986) taxonomy, lecture-based cases, which seem to partially fit the context in this study. It is a perfect match with what Savin-Badin and Major (2011) and the literature called the ‘funnel approach’ or ‘the foundational approach’, respectively.

Here, the students are given a lecture that should set the context for the problem and provide the learners with an opportunity to gain some vocabulary that would familiarize them with the topic they have to deal with. In the section about reading in Chapter 10, it was outlined that this is important for successful reading. To keep the merits of the PBL approach, the problem should not replicate the information given in the lecture, and it should allow the students to gain more knowledge themselves, as in PBL in its purest form.

PBL has also to take account of the linguistic teaching objectives which are particularly associated with language learning when implemented in language teaching. This content should be taken into consideration when designing the course, and, therefore, combine knowledge and language or career content and real content involved in ESP.

11.5.3. The PBL Tutorial Structure and Course Design

Silver (2004) illustrated the different steps undertaken by the learners during the PBL tutorial processor what he called ‘*the PBL cycle*’. The students are first presented with a problem scenario that they discuss. Then, they identify the relevant facts and come up with possible solutions. They identify the information needed, which becomes learning issues for students; the goal of this stage is self-directed learning. The newly

acquired knowledge is used, hypotheses are formulated, new facts might be identified and the cycle continues.

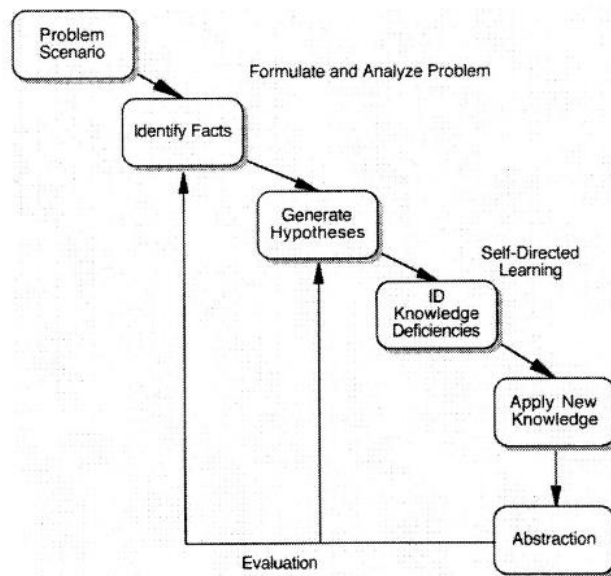


Figure 46; the problem-based learning cycle (Silver, 2004; p. 237)

It is worthy to note here that this type of tutorial might be one that should be used with very advanced and experienced learners. Barrett (2005) provided a more comprehensive description of the PBL tutorial with implications for the students' roles in the box below.

- 1) First students are presented with a problem;
- 2) Students discuss the problem in a small group PBL tutorial. They clarify the facts of the case. They define what the problem is. They brainstorm ideas based on the prior knowledge. They identify what they need to learn to work on the problem, what they do not know (learning issues). They reason through the problem. They specify an action plan for working on the problem;
- 3) Students engage in independent study on their learning issues outside the tutorial. This can include: library, databases, the web, resource people and observations;
- 4) They come back to the PBL tutorial(s) sharing information, peer teaching and working together on the problem;
- 5) They present their solution to the problem;
- 6) They review what they have learned from working on the problem. All who participated in the process engage in self, peer and tutor review of the PBL process and reflections on each person's contribution to that process.

Box 3; Operational definition of PBL (Barrett, 2005; p. 15)

It is clear in the structure above that the PBL tutorial has to run over two sessions, as the students need to do some work on their own outside the classroom between the two

sessions. The tutor is also supposed to interact with the students at this final stage to contribute to evaluation and feedback.

Boud and Feletti (2013) also argued that work on a problem scenario requires two sessions. They provided a comprehensive description of the process, goals, and expected learning outcome in each session of the PBL tutorial. In the two tables below, they showed all the steps to be followed in a PBL tutorial over two sessions, what is expected from PBL, and how to meet these expectations. It also explains what is expected from the students and outlines their roles.

The process	The goals	The outcome
The tutor starts the session with a presentation of a problem that a new graduate might be faced with. He or she may show a short video tape, play a brief audio recording or distribute a written account.	The students are stimulated to attempt to tackle a realistic problem in the field in which they wish to become competent.	Learning in the context in which it is to be applied is remembered longer and can be retrieved more easily for application in the context in which it is to be used. Relevance to the goals of the learner provides an incentive to learning.
The students are expected to organize their thoughts about the problem and to attempt to identify the broad nature of the problem and the factors or aspects involved in the problem.	The students practise observation and succinct presentation of what has been observed. The students are challenged to begin by applying their existing knowledge and experience.	Learning is cumulative, leading to increasing familiarity. Stimulation of existing knowledge facilitates anchoring of the new knowledge.
After a period of brainstorming in relation to underlying causes, mechanisms and solutions, the students are encouraged to examine each of their suggestions more critically.	The students are given constant practice in a logical analytical, scientific approach to unfamiliar situations.	This facilitates the progressive development of a mental process for the storage, retrieval and application of knowledge.
Throughout the discussion students will naturally pose questions on aspects that they do not understand or need to know more about. These questions will also be recorded by the scribe.	The students are consistently encouraged to identify what they do not yet understand or know and to regard this as a challenge for further learning (not as a disgrace).	Adults find it easier to learn if they can ask their own questions and seek answers to their own questions.
Before the end of the session, the tutor will help the students to concentrate on questions that are particularly important at this stage of their studies. The students decide which of these questions they will all want to follow up and which questions they will leave to individuals who will subsequently teach their follow students	The students are helped to recognize that nothing is ever learned completely, and that learning in a variety of subjects/topics is concurrent in order to be applied in an interrelated fashion. Also when a great deal has to be learned, the task needs to be shared with other students.	Integration of learning assists integrated application. Cooperation is fostered instead of competitions with colleagues.

Table 8; The first problem-based group session (Boud and Feletti, 2013, pp. 20-21)

The process	The goals	The outcome
<p>The tutor starts the session by encouraging the students to reflect on what they have learned towards answering the questions that are still on the flipchart or board. They will start by exploring each other's' answers to the questions which all the students had decided to follow up.</p>	<p>The students practice exchanging information on the usefulness of various sources of information. They practice sharing new learning by presenting it to their peers and by questioning each other.</p>	<p>They learn how they obtain information from various sources including consultation of experts. They learn how to convey information and how to question others critically but without causing offence. Active use of what has been learned and feedback on how well new learning has been assimilated help to embed new information in long-term memory.</p>
<p>The next step is to invite individual students to pass on to their peers the insights they have gained from their study of questions which they alone had agreed to tackle.</p>		<p>Students learn how to compare their performance with that of their peers and to identify their own strengths and their weaknesses.</p>
<p>New knowledge and understanding is applied to the original problems. The students consider whether their earlier conjectures or hypotheses can be reordered or refined, and what further information about the problem will assist in its further exploration. Throughout both sessions the tutor can provide further data about the problem when the students have advanced cogent reasons for access to such information. A definitive resolution of the problem may not be necessary, particularly early in the course.</p>	<p>The students practice the application of new knowledge to the original or a similar problem.</p>	<p>They provide transfer of knowledge through application in a realistic context.</p>
<p>Perhaps, once every two weeks, at the very end of second session, the tutor will call 'time out' and stimulate the group to reflect on how their studies are progressing, what they have learned, how their learning fits together, how they as individuals, are progressing and how they have functioned as a group.</p>	<p>Students are encouraged to reflect on what they have learned, how they have learned and how they have contributed to the group's work.</p>	<p>Reflection on recent experiences is an effective method of learning: wisdom through reflection.</p>

Table 9; The Second Session (Boud and Feletti, 2013, pp. 22-23)

This information is useful for course design when all the necessary elements have been identified. It explains the various steps of the PBL tutorial, how to proceed, and what learning objectives are associated with each step.

However, this is not the only option. Barrett (2005) explained that other problems are designed to be sorted out over many weeks and where the PBL students might receive

new information related to that problem in the middle of the work, just like in real life, such an email or a phone call.

Another figure representing the PBL tutorial, in the field of language learning, is presented by Aydinli (2007). He stated the steps followed by students during the PBL tutorial and the role of the facilitator.

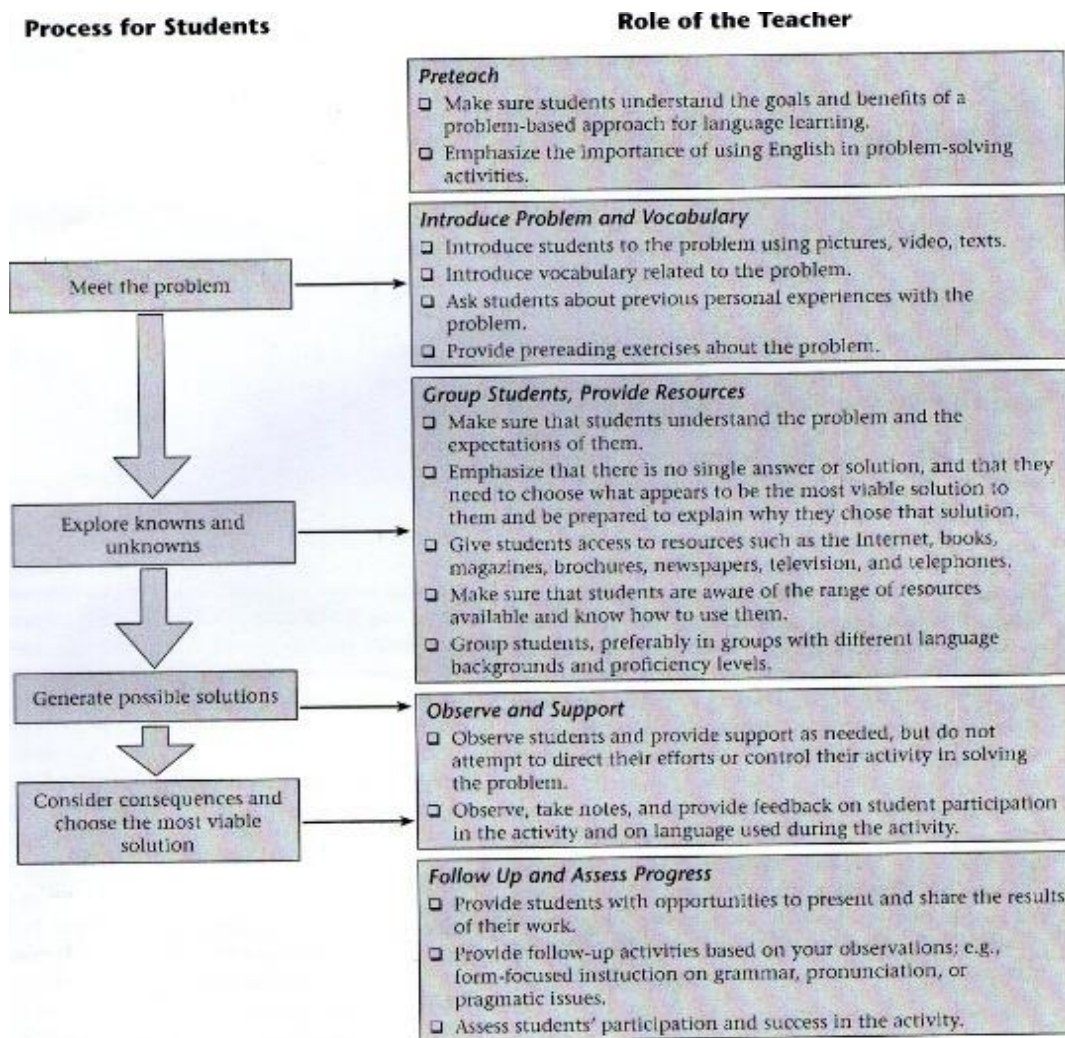


Figure 47; Student and Teacher Roles in Problem-Based Learning, Aydinli, 2007, p. 2)

This figure draws on both teachers' and students' roles during each stage of the PBL tutorial, which somehow completes the picture of tutor and learners' roles in PBL. This figure is related to a language teaching situation, and, therefore, takes into account linguistic issues. It is clear that the author has used a hybrid model of PBL where the tutor has to pre-teach some vocabulary related to the problem so that students can

understand the scenario. Aydinli (2007) also described the procedure that the tutor should follow during the tutorials: pre-teach, introduce the problem and the language needed to work on, group students and provide resources, observe and support, follow up, and assess progress.

He argued that the teacher has to pre-teach the notion of PBL for students who are new to this approach and explain to them what they are expected to do. The students should know that they have to work in a team, solve the problem and look for information themselves, and that all they can get is assistance. In addition, the tutor has to remind the students that they have to use the English language while working with the problem. He also recommended that tutors should prepare the students for the problem by teaching new vocabulary and doing pre-problem solving activities, such as pre-reading or pre-writing.

As for grouping the students, he suggested grouping students into different proficiency levels and different cultural backgrounds in order to maximize students' use of English. Teachers also should provide the students with resources. Once the students start working with the problem, the teacher starts providing support and direction. What is specific to language learning at this point is that during this phase 'teachers' should make notes of language problems encountered by students. This involves scaffolding and monitoring.

This stage should lead to the next step of follow up and assessment. The students should, therefore, be given an opportunity to share their final work with their peers from the other groups and get feedback on their language from the 'teacher'. To a certain extent, this form of PBL teaching is appropriate in that it sets general guidelines for language teachers on how to use PBL. Most of students and teachers' roles are delineated in the figure. However, somehow it reminds us much of the PPP model in the communicative approach, with the three stages of pre-teach, practice, and produce. It also resembles task-based learning in introducing the students to the task and getting them to work together on a similar task and providing them with the necessary resources. We argue, however, that when the tutor provides the learners with resources, s/he is explicitly or implicitly deciding for the students what sort of information they do not know and

need to know to sort out the problem. In PBL, students have to learn about themselves as learners (meta-cognition) and identify their gaps of knowledge, which become learning issues. This step leads to self-directed learning and learner responsibility, which are core concepts and crucial learning outcomes in PBL. Neglecting this step might fail PBL objectives.

The linguistic objectives should be set from the start. The learners will definitely read about the problem to find the necessary data, but should they orally present their findings and discuss them with other groups? Should they provide a written report where they have to put down their arguments and their recommendations? While Aydinli (2007) suggested this should be done as a follow up, learners should be aware and have to be told from the beginning where they are heading to. Ravitz (2009), with reference to Barrows (2002), recommended that future “studies must specify how PBL is used in different disciplines and contexts” (p.9). As PBL is still ‘new’ in language classes, a few resources are available and a lot needs to be clarified. For this study, a specific model was prepared in which the same learning outcomes and goals presented in Boud and Fellitti (2013) were followed.

The problem-based learning approach helps the students learn meaningfully in a context to achieve an outcome using the target language. In this study, an attempt will be made to show how linguistic objectives can be integrated into the method, and, therefore students can learn the language while developing other skills. The following part explains this particular view of PBL and implementations aims in this study.

The tutor or problem designer should think of possible linguistic outcomes or ‘real content’ to be associated with each problem. In terms of a discourse-based approach, teaching is conducted by giving arguments, for instance, through the following problem scenario:

“Should we medicate when we have a cold or should we not?” (TV Program; ‘The Doctors’ on MBC 4, 2013).

It would be beneficial for students to make up their minds about this point, defend their opinion, agree or disagree with other groups, make plans, investigate the topic and find more information to back up their claims, bring information to class and negotiate

ideas with their peers, and, perhaps, change their own minds. The tutor can target speaking here, for instance. Another option is that the tutor asks the students to organize their ideas, write their arguments, and then make an oral presentation using different aids for presentation to target both writing and speaking. Reading, of course, is a natural phase as the students need to look for information and research the topic. Listening can also naturally take place during conversations.

Students should first reflect on the problem, consider both answers, and back them up. They might have previous knowledge about colds. This knowledge should be activated; however, students might not know that colds are unlike flu and do not need antibiotics and that medication provided is meant only to help symptoms subside and relieve the pain. Students should consider what they know and what they do not know, and, thus, gaps in their knowledge will be identified. These gaps are now learning issues for which learners need to gather information. During this phase, students will have to consult the library, electronic resources, and other sources in order to find the information that helps them build their opinions.

This phase is very important, as students have to read on their own, understand and select the appropriate material, perhaps use dictionaries, and struggle to understand without anyone's help. This is self-directed learning, and students should gain the skills and become autonomous and self-confident. Before the students start this step, the tutor might need to help them use the library and equip them with some reading strategies such as using the title to select the material, do skimming, scanning, or other techniques. A cognitive approach to reading can be useful and perfectly match PBL.

In the first session, the students discuss the problem, come up with a plan, and identify their learning gaps. Then they do the individual part of the work by looking for the information they need to get ready for the second session. The students will select the information they consider useful, but they should be made aware of how to summarize the information adequately and how to quote the resources and their references to avoid plagiarism. Once the learner is equipped with the necessary knowledge, s/he should be ready for the next tutorial session.

During the second tutorial session, the tutor should ask the students to bring their resources and to report the information to their team members. This is a crucial step in which the learner him/herself has ‘to teach’ his/her findings to the team, which should involve deep processing of the new information. This knowledge should be retained in a better way than when it is merely given by the teacher. During this session the learners should bring in their own input about a topic, negotiate their findings, exchange information, select the best information that helps answer their questions to sort out a case, and come to a decision within the group. Students in the same group might agree or disagree, but they have to come up with one decision and learn how they should agree. Along with language practice, a lot of interpersonal and cooperative skills should be developed. However, the work is not finished at this step in a language class.

Regarding follow up and feedback, students should be given the opportunity to share their final work with other groups and with the facilitator in order to get feedback in terms of knowledge, language, and general performance. It is seminal to remind the reader that there are no wrong or right answers in PBL, but students should be given advice in order to improve their attainment of the course objectives in the next tutorial. At this phase, students take part in their peers’ assessment. They also have to do self-assessment; they can be given time to reflect on what they would like to add or change if they had to present their work again.

For the sake of the empirical part of this study, a model of the PBL tutorial was prepared, which should be piloted before the experiment to make sure it fits in with the learning context associated with this study.

1- Session 1:

1. Students are introduced to a problem scenario.
2. Students discuss the problem scenario.
3. Students’ schemata are activated and gaps of knowledge are identified
4. Students prepare their plan of work.
5. Students divide the work among themselves in order to bring the needed

information- end of session 1

Homework:

6. Students search for information.
7. Students summarize their findings.

2- Session 2

8. Students bring information to the classroom / Students put their work together: knowledge about a topic is shared between students/ meaning is negotiated/ decisions about something is made/ work is assembled and finalized.
9. Students present their work to the class.
10. Students get feedback from other groups and from the tutor and are given the opportunity to assess their own work.

Box4: The Structure of PBL Tutorials in an EAMP Classroom

It is useful to note that scaffolding and mentorship are offered by the tutor whenever they are needed.

11.5.4. Assessment in PBL

In PBL, the learning processes are the main issues. This is also reflected in the assessment methods applied in the approach. Walker and Leary (2009) reviewed different procedures of PBL assessment. They reported that the first variance that was devised by Gijbels *et al.* (2005) based on Sugrue's (1995) work sets three levels of assessment: the concept level, the principles level, and the application level. At the concept level, the learners should be able to define or give examples of 'a fundamental construct' or a concept. At the principle level, assessment is based on the identification of the relationship between the different constructs. At the third level, the application level, the learner is assessed on the ability to apply the identified constructs in new situations.

This type of assessment reflects the philosophy of the PBL approach in its purest form, the type associated mostly with medicine. It is also possible with experienced learners who have reached the stage of total autonomy. On the other hand, nothing has been said here about the ability to identify one's own gap of knowledge and whether the

learner manages to fill this gap, which is a seminal stage in the PBL process of learning. Between the principle level and the application level, there appears to be another level, the '*gap and gap filling*' level, which should be crucial in evaluating the learner's life-long ability to construct new knowledge; therefore, the model should target four levels instead of three.

The second type of assessment reviewed by Walker and Leary (2009) is the '*thought process*', which was first introduced by Albanese and Mitchell (1993). This type of assessment makes the difference between 'forward-driven reasoning' and 'backward-driven reasoning'. The former type of assessment is used by experts for a diagnosis, whereas the latter is used by novices. This process, however, is closely associated with medical education.

Neville (2001) argued that assessment impacts students' learning behavior; the students explained that they feel more secure when they know what they will be tested on. However, De Graaff (2004) viewed this attitude to assessment in PBL as problematic and '*counter-productive*'; "In a problem-based curriculum students are expected to define their own learning goals, within the broad scope of the course. When they know in advance what knowledge will be in the test, the risk is substantial that their learning choices will be limited to those aspects" (De Graaff , 2004, p.100).

To cope with this problem, De Graaff and Kruit (1999) developed an alternative method for assessment for an undergraduate program in applied physics at *Deft University of Technology*, which they tested in an experiment. This assessment model mimicked the course objectives, which included developing the ability to solve technical physical problems in a structured manner, identifying relevant knowledge, analyzing possible solutions, and working together in small groups. The course targets both individual learning and cooperative learning, as does the assessment model. For the first criterion, the facilitator used a checklist to evaluate each student's participation in the group, which constituted 50% of the exam overall grade. This procedure was repeated twice and performed during the course PBL tutorials. The other 50% of the exam mark goes to a written exam. This exam contained 13 open-ended questions in which each student only has to answer ten. These questions aimed at evaluating the learners'

understanding of the subject (physics). The mean score for the 75 students (after two drop outs) was 7.4 out of 10 and only two students who were absent for the exam failed.

The positive thing about this model, '*the assessment model*', is that it takes into account student's individual abilities and group work contribution. It has the advantage of testing students during the tutorial on two occasions, which should maximize fairness. It also induces the students to take the PBL tutorial learning sessions more seriously when they know they are evaluated on their performance within the group. The writing part also can increase students' sense of security, as it gives them the opportunity to individually focus on their own understanding of the subject.

Comparing these models of assessment, the model presented by Gijbels *et al.* (2005) seems very similar to De Graaf's (2004) 'Assessment Model' in the group assessment part. However, the latter is more comprehensive and practical. It is also closer to language assessment, as it would be appropriate for assessing oral and written activities. It also allows the tutor to observe and assess the learner's used strategies while working on a problem.

In the literature, nothing has been said about PBL assessment in language teaching. PBL assessment in language teaching should also reflect the course learning objectives. As in the 'Assessment Model', the students can be evaluated during the PBL tutorial. Students will have to report their decision about a matter or report their results or final achievement for a problem scenario, such as writing a composition or making an oral presentation.

Eventually, following De Graaf's (2004) model, which reflects PBL goals and objectives discussed above, the following rubric for assessing PBL is suggested. This rubric includes general evaluation criteria as well as linguistic benchmarks.

While coaching the group during the PBL tutorial, the facilitator can observe different members' performance and evaluate their overall work in terms of material selection, use of material, effective participation, and willingness to carry out the work and cooperate with fellow students. This might include:

- Were the students able to understand the problem scenario? This can be assessed through planning. If the students made a plan that served to solve the problem, this means they understood it.
- Did the students manage to identify gaps in their knowledge? Did they manage to decide what information they do not know, but they need to fulfill the work?
- Did they manage to find the appropriate information?
- Did they manage to fit the information successfully in the group work plan?
- How much did each individual contribute to team work?
- Did the students manage to assess their work and their peers' work?

This rubric helped construct the observation scheme that was used in the empirical phase of this study to assess learner autonomy.

So far, the promises of the PBL approach in theory have been examined. In the following section, the achievements realized by this approach as well as its limitations in previous research should be assessed and considerations should be made in order to enlighten this particular study. This section includes PBL research results from different fields, and, more specifically, in its ESP application.

11.6. PBL Research in the Literature: Limitations and Achievements

Despite some controversies in the literature about the extent to which PBL has proved to be effective, this approach has maintained itself over four decades. Universities still embrace it partially or wholeheartedly and grants have been given to restructure different institutions that teach using PBL. Rhem (1998) argued that this is evidence that the approach has a lot of merits. He stated some advantages of the advantages that PBL brings to students;

[PBL learners] achieve higher levels of comprehension, develop more learning and knowledge-forming skills and more social skills as well. This approach to teaching brings prior knowledge into play more rapidly and ends up fostering learning that adapts to new situations and related domains as quickly and with the same joyous magic as a stone skipped over a body of water (p. 2).

In terms of limitations, Neville (1999) reported that students often expressed their concern regarding the PBL approach in McMaster University; students need to feel secure in a more structured environment and to have a course outline and a syllabus. Students worried whether they would get the required content for exams. He reported that other research in McMaster had shown similar students' perceptions. Blumberg and Eckenfels (1988, cited in Woodward & Ferrier, 1982) reported that students were dissatisfied with the lack of structure in their PBL curriculum. In addition, McMaster students identified the lack of core material definitions as a weakness in their undergraduate MD Program.

However, this problem can be solved through the selection of a mixed-form of PBL or a hybrid approach. For PBL, teaching to succeed as a teaching methodology, there are a number of conditions to be met. In this regard, Boud and Felitti (2013) stated that in PBL "there is a need for a clear conceptual map of the domain of learning, a curriculum structure, a means for students to progress through the material and a way of checking to see if both the students and the course are achieving what is intended" (p.16). It is worth noting that McMaster University uses the pure PBL approach. In this approach, students get no extra help or any lectures. Along with this model, most of the PBL approaches used and embraced by many institutions are hybrid (Savin-Badin and Major (2011) or soft PBL approaches, as the educational community would call them. In these types of PBL, students get the merit of the approach and they follow the same PBL tutorial procedure. However, they also get help when needed and are provided lectures. In language teaching, the roles attributed to teachers and learners might vary slightly depending on the discipline in which PBL is implemented, the type of PBL approach used, and the types of problems.

Mauffette et al. (2004) reported the results of a survey they conducted in Quebec about the impact of different types of problems on students' PBL experiences. They found that three main problems impact students' learning and the group dynamics, namely the structure of the problem, the variety of problem scenarios, and the challenge of the problem. Regarding the last criterion, they reported differences between first year students who preferred more directed problems and older students who preferred less directed problems. This claim is to be retained, as it helps explain that novice students

with the PBL approach need more help and direction than experienced students and why the hybrid approach was adopted in the context associated with this study.

In a review of the literature of empirical and theoretical studies from 1992 through 1998, Colliver (2000) questioned the credibility of claims advocating PBL as a superior approach. He also criticized the theories underpinning this approach and described them as weak. He said:

Norman and colleagues, in an outstanding series of papers have reviewed the evidence for these underlying principles and mechanisms. For the most part, the evidence from this basis research is positive. And yet the applied research on PBL curricula reviewed here shows little evidence for the practical effectiveness of PBL in fostering the acquisition of basic knowledge and clinical skills (p.264).

In a more recent article, Norman and Schmidt (2000) challenged Colliver's claims, as the following statement suggests:

In a companion paper in this issue, Albanese discusses the interpretation of these effects in detail, and challenges Colliver's interpretation. We concur with his challenge, and we believe that it amounts to ignoring much of the data that he, himself, reviews (Norman and Schmidt. 2000, p. 721).

In fact, Norman and Schmidt (1992) acknowledged both merits and limitations of the approach. Drawing on experimental studies, they studied the advantages and disadvantages of PBL. They reported that, in general, there is no proof that PBL curricula result in any improvement in a short time. On the positive side, in the long term, they argued that it increases knowledge retention, it enhances concept transfer, and it improves students' intrinsic interest in the subject and self-directed learning skills. Despite this evidence, the article shows their concern about the extent to which PBL has been embraced as an approach.

Such august bodies as the Association of American Medical Colleges and the World Federation of Medical Education have wholeheartedly endorsed the approach [PBL]. It is ironic that a professional community that prides itself on adherence to the scientific method has swung so strongly toward this innovation, despite considerable evidence that the differences in favor of PBL, at least at the level of the curriculum comparisons, are small indeed (p. 557).

Awareness of these limitations has helped the selection of the type of PBL that can be more fruitful for the learners in the institution included in this study. It's worth noting that McMaster University uses the pure PBL approach, as described above.

Other studies have been in favor of PBL. For instance, Hmelo-Silver and Barrows (2006) reported that empirical studies have shown that PBL students developed better self-directed learning skills and demonstrated they could use their knowledge more effectively than non-PBL students; “Empirical studies of PBL have demonstrated that students who have learned from PBL curricula are better able to apply their knowledge to novel problems as well as utilize more effective self-directed learning strategies than students who have learned from traditional curricula” (p.24).

In line with this argument, Ravitz (2009) reported that ‘*the available evidence is promising*’. Articles comparing PBL to traditional approaches have shown that “*PBL excels on other kinds of outcome*” (p.563). Schmidt, Vermeulen, Der Molen, and Henk (2006) studied the long-term effects of problem-based medical training on the professional competencies of graduates, where PBL and non-PBL graduates of the year 1980 filled in a questionnaire to rate themselves on 18 professional skills and the results were rather positive:

The graduates of the PBL School scored higher on 14 of 18 professional competencies. Graduates of the PBL School rated themselves as having much better interpersonal skills, better competencies in problem-solving, self-directed learning and information gathering, and somewhat better task-supporting skills, such as the ability to work and plan efficiently. There were no sizeable differences with regard to general academic competencies, such as conducting research or writing a paper. Graduates from the conventional school rated themselves as having slightly more medical knowledge (Schmidt et al. 2006, p. 566).

These results suggest that PBL learners develop more professional skills that are crucial for success in the work place. They also question the superiority of the approach in terms of the learnt academic knowledge.

Lycke, Grottum and Stromso (2006) conducted a study comparing students on a PBL program and students on a traditional Medical Faculty program at the University of Oslo, Norway. The research comprised two studies: (1) a study of learning strategies and mental models of learning based on a questionnaire, and (2) a study of learning outcomes based on a test of medical knowledge. While the results showed no remarkable differences in medical knowledge, a remarkable difference was noticed in the number of learning strategies that the PBL learners developed: “more self-regulation, more constructive conceptions of learning and higher appreciation of discussion with peers” (p.717).

These results justify the choice of PBL in this study to enhance students' learning strategies and self-directed learning skills in order to develop language learning for academic medical purposes. Hmelo-Silver and Barrows (2006) reported that empirical studies have shown that PBL students had developed better self-directed learning skills and demonstrated they could use their knowledge more effectively than non-PBL students;

Empirical studies of PBL have demonstrated that students who have learned from PBL curricula are better able to apply their knowledge to novel problems as well as utilize more effective self-directed learning strategies than students who have learned from traditional curricula (p. 24).

Among the advantages of PBL is the ease of knowledge retrieval when needed, which is typically absent from other approaches to learning. This confirms the discussion about the theoretical basis of PBL and the psychology of memory discussed in the first section of this chapter. This confirms that memory functioning is enhanced through PBL and it partially justifies the choice of the approach in this study.

Schmidt et al. (2006) studied the long-term effects of problem-based medical training on the professional competencies of graduates, and PBL and non-PBL graduates since 1980 completed a questionnaire to rate themselves on 18 professional skills. Although they questioned the superiority of the approach in terms of the learnt academic knowledge, the results showed superiority in several professional skill areas.

The graduates of the PBL School scored higher on 14 of 18 professional competencies. Graduates of the PBL School rated themselves as having much better interpersonal skills, better competencies in problem-solving, self-directed learning and information gathering, and somewhat better task-supporting skills, such as the ability to work and plan efficiently. There were no sizeable differences with regard to general academic competencies, such as conducting research or writing a paper. Graduates from the conventional school rated themselves as having slightly more medical knowledge (Schmidt et al. 2006, p. 564).

These results suggest that PBL learners develop more professional skills that are crucial for success in the workplace. Norman and Schmidt (1992) found that PBL students are advantaged over non-PBL students when tested on long-term memory and concluded that PBL increases the retention of knowledge. This can be explained by the learning process in PBL; in PBL, students learn when previous knowledge is activated, knowledge gaps are identified and new knowledge is accommodated, and, therefore, constructed. Students explore knowledge themselves in a meaningful way, bring

information they have found to class, share it with their peers, and negotiate meaning. It allows them to process information as they are working with it at a very deep level.

McLean et al. (2006) reported some controversies related to the pros and cons of the PBL group, but empirically proved that the approach had brought about positive changes. For a number of authors (e.g., Holen, 2000; Dolmans *et al.*, 2001; Eva, 2002), PBL students develop social skills to function as members of a multidisciplinary team and to learn cooperatively by sharing their newly acquired information and recently constructed knowledge. However, their views contrast those of Colditz (1980, cited in Norman and Schmidt, 2000) who claimed that “poor group dynamics and intolerance of individual differences may hinder rather than promote learning” (p. 721). To confirm or refute the merits of co-operative learning in PBL, McLean et al. (2006) conducted a study evaluating a three-year period of the implementation of PBL on novice tertiary education students and old ones in a South African institution, reporting the following results. On the positive side, 93.3% of students agreed that the small group in the PBL tutorial positively impacted one of these domains: cognitive, affective, or social. The authors stated that for some, the tutorial had been conducive to their learning (e.g., filled in the gaps, gave them a better understanding), whereas for others, the group assisted with their integration into the faculty. Almost 39% of the respondents had made friends, while 27% indicated that they had found the small group learning environment cooperative. Many students indicated that their experiences in the small group had also resulted in personal development (e.g., affective domain), ranging from becoming more tolerant and patient to developing confidence and becoming more self-assured. Similar results were scored for the ‘mature’ students, those who have been at the university for three years.

On the negative side, only 10 students (i.e., 5.6%), mainly the mature students, did not feel they had benefited from the group work. A further 7 students reported that they were too shy, for instance, or they preferred to work by themselves.

It is obvious from these results that the advantages of the small group in the PBL tutorial far outweigh the ‘negative’ feedback presented by some of the students. The authors commented that even students who did not approve of the tutorial did not report

any drawbacks, but it was just their own perception and preference not to work in a group.

Hutchings O'Rourke's research involved the implementation of PBL in the teaching of arts and humanities and the results were rather negative.

Arts and humanities began to face questions about their relevance and value in an increasingly market-driven economy which has vast influence on academe, marked by the rapid growth and expansion of professional fields. The increased use of problem-based learning has arguably been slower in these areas, perhaps because of the challenges of adapting the classical model to these subjects. Certainly Hutchings and O'Rourke's work in the UK (Hutchings and O'Rourke 2004) has suggested that 'literary studies is essentially a discursive, open-ended, critically contested, responsive and creative subject that challenges students and encourages them to find their intellectual pathways'. In their study of problem-based learning in literary studies, Hutchings O'Rourke found that any imposition of a rigid structure in terms of specific responsibilities within the groups was counter-productive to the nature of learning within the discipline (Savin-Baden and Major, 2011, pp. 20-21).

Hutchings O'Rourke's feedback reported in the statement above about the use of PBL was not positive. The same negative results were echoed in other language classroom research that used PBL. The concept of migration of ideas from one domain to another was discussed earlier and we explained that a crucial condition is the compatibility of the features of the transferred element to the new situation. The question that arises is how compatible is PBL with arts and humanities?

The idea of implementing PBL to teach ESP has gained ground since the beginning of the 21st century. Problem-based learning has been used in ESP in the early new millennium and results were generally in favor of its implementation in the ESP course. Experiments held in the ESP classroom, such as the LENTEC Project and other research reports that will be discussed below, proved to be successful. A major part of PBL research involving ESP lies within (Teaching English for Technical Purposes) LENTEC, a Leonardo da Vinci Virtual Project which ran between 2001 and 2003, and several pieces of work have been written around this project (e.g., Dragemark Oscarson, 2006, 2009; Perkins *et al.*, 2004; Van Kleef & Perkins, 2004).

The project involved upper secondary vocational students from six different European countries. Participants used Blackboard, a digital learning environment, to communicate and students had to solve problem-based learning cases. The purpose of the project was to improve the students' English language skills in their vocational field and

self-assessment in writing. Language and subject teachers, as well as some experts from the industry, were involved in designing the problems so that problems look like real-life ones. “In this way we hoped to achieve a more innovative way of motivating technical students to use their English in a technical curriculum through real communicative and vocational tasks. It provided a ‘natural’ reason for communication in a foreign language” (Perkins et al., 2006, p. 4). For student self-assessment, Swedish Self-Assessment Material and The European Language Portfolio were used according to the study report. This has been confirmed in research conducted by Dragemark (2006) within the LENTEC project in the area of ‘self-assessment’. The study was ‘process-focused’ rather than ‘product focused’, and students had to keep portfolios of their work. They also had to assess their own work and answer questionnaires about what they could and could not do. The findings showed that students’ awareness of their own progress increased. On the other hand, teachers reported that having delegated part of their work (i.e., assessments) to the students resulted in increasing the students’ motivation and gave them an opportunity to spend more time on their learning (Dragemark, 2006).

Perkin (2004) concluded that “Everyone involved in the project agrees that LENTEC has been a stimulating and excellent way of working. Students felt motivated to take part and preferred this way of studying” (p. 43).

In English for occupational purposes, Kim (2006) carried out a qualitative study in Malaysia. She reported that the five ESP students involved in her experiment, benefited from PBL in their language skills in speaking and writing letters of complaint in English for Business Purposes.

In another study involving ESP, Wood and Head (2004) presented an EAMP Course based on the pure PBL model discussed in this chapter. They explained that they tried to keep the source close to the domain of the learner, yet relevant to EAP learning. The learners were divided into groups and they had to describe different diseases. Different groups had to find out the disease described by their peers. This was motivating for the students, as the authors reported that “while not maintaining that this approach to EAP is necessarily applicable to a wide range of other academic disciplines, we would

however claim that it can be, and has been, applied successfully to the teaching of medical EAP” (Wood & Head, 2004. p. 15).

However in this study, the investigators only provided this ‘problem scenario’. It may be argued this is ‘a riddle’ rather than a problem-scenario. In addition, how many times can we ask the students to do this activity? Students will be bored if this ‘riddle’ makes up a whole course. It may be argued that the problem-scenario should be well thought out, challenging, motivating, and at the same time takes into consideration the process or steps of learning using the PBL approach.

Other research in ELT claimed that the implementation of PBL in ELT is not without challenges. Larson (2006) and Aydinli (2007) reported that one of the problems with PBL in language teaching is that students tend to use their mother tongue, especially when they share the same language. It may be argued that this issue should be addressed while facilitating the problem so that the students do not lose the chance to communicate in the target language, and, therefore, miss the linguistic objective. Aydinli (2007) discussed two other problems: 1) students’ inadequate linguistic level to cope with a problem can hinder the process, which he suggested could be sorted out through placing stronger and weaker students in the same group and pre-teaching some of the vocabulary necessary for the problem, and 2) students’ interactions might be affected by the presence of the tutor. Savin-Badin and Major (2011) argued that the problem in PBL is the problem. In an ESP course based on problem-based learning, this issue gets even more complicated, as several issues have to be addressed, including the learner’s language level, the knowledge s/he possesses in his/her field, and the degree of technicality of the content. It is not in the hands of the ESP practitioner to ask students to diagnose diseases they themselves do not know. Therefore, the aim was to design problems that are in accordance with PBL principles, serve ESP objectives, and ensure language acquisition. There are in fact many sources that can inspire the PBL designer, even TV programs like *the Doctors*, which are meant to be directed to the general public, and, therefore, are not too technical. However, at the same time they involve problem solving skills, such as the example mentioned above about whether or not to medicate when one has a cold.

Another source is the Internet, particularly articles about health news, as will be described in the problems that were designed.

Overall, PBL is more likely to work, even in a language (ESP) classroom, as discussed below. Despite the scarcity of PBL research involving ESP, most research in this field draws on positive findings. In the following section, PBL compatibility with language learning will be considered by comparing it with TBL.

11.7. PBL and TBL

In this section, the compatibility of PBL with language learning will be demonstrated through its comparison with Task-Based Learning (TBL), especially in terms of epistemological bases. Other advantages that PBL can bring to general language learning, as well as ESP learning, will also be detailed.

11.7.1. Similarities in Epistemological Bases between PBL and TBL

Both TBL and PBL are learner-centered approaches that adhere to action-based learning. Tardieu (2008) provided the concepts encapsulated by action-oriented approach, which are illustrated in the Common European Framework of Reference in the table below.

Compétences	Ensemble des connaissances, des habiletés et des dispositions qui permettent d'agir.
Compétences générales	Ensemble des connaissances, des habiletés et des dispositions qui permettent d'agir.
Contexte	Renvoie à la multitude des événements et des paramètres de la situation (physiques et autres), propres à la personne mais aussi extérieure à elle, dans laquelle s'inscrivent les actes de communication.
Activités langagières *	Impliquent l'exercice de la compétence à communiquer langagièrement, dans un domaine déterminé, pour traiter (recevoir et/ou produire) un ou des textes en vue de réaliser une tâche.
Processus langagier	Renvoie à la suite des événements neurologiques et physiologiques qui participent à la réception et à la production d'écrit et d'oral.
Texte	Toute séquence discursive (orale et/ou écrite) inscrite dans un domaine particulier et donnant lieu, comme objet ou comme visée, comme produit ou comme processus, à activité langagière au cours de la réalisation d'une tâche.
Domaine	Éducationnel, professionnel, public, personnel.
Stratégie	Tout agencement organisé, finalisé et réglé d'opérations choisies par un individu pour accomplir une tâche qu'il se donne ou qui se présente à lui.
Tâche	Toute visée actionnelle que l'acteur se représente comme devant parvenir à un résultat donné en fonction d'un problème à résoudre, d'une obligation à remplir, d'un but qu'on s'est fixé. (déplacer une armoire, écrire un livre, commander un repas dans un restaurant, etc.).

Table 9; Mots clés de l'approche actionnelle (cf, CERCL p.15, in Tardieu, 2008; p.43)

This table explains learning as it is embraced by TBL, where we find some concepts related to ESP like the notion of the domain of the learner. We argued earlier that PBL also uses the domain of the learner. Below there will be a further discussion of the aforementioned learning concepts in relation to PBL and TBL.

Chini (2010) reported that action-oriented approach as it is presented in the CEFR is different from the communicative approach in that the language learner is seen as a user of the language in order to fulfill different life tasks.

L'une des différences entre la PA (Perspective Actionnelle) et l'approche communicative est l'instauration de l'apprenant comme acteur social à part entière, membre d'une communauté qui doit accomplir des tâches nécessitant, entre autre, le recours à la langue étrangère, ce qui fait de lui a priori un usager légitime de cette langue (p. 6).

Similarly, Branden (2006, cited in Lu & Corbett, 2012) pointed out that tasks provide language learners with the opportunity to act as language users.

Classroom tasks should facilitate meaningful interaction and offer the learner ample opportunity to process meaningful input and produce meaningful output in order to reach relevant and obtainable goals. In other words, tasks invite the learner to act as a language user, and not as a language learner (Branden, 2006, pp. 6-9, cited in Lu and Corbett, 2012, Chapter 3, Section 1 paragraph 3).

In the context of language learning, in TBL, students learn the language by using it and so do PBL students. Ellis (2003) emphasized the importance of using the language in real-life situations.

A task is a work plan that requires learners to process language pragmatically in order to achieve an outcome that can be evaluated in terms of whether the correct or appropriate propositional content has been conveyed. To this end, it requires them to give primary attention to meaning and to make use of their own linguistic resources, although the design of the task may predispose them to choose particular forms. A task is intended to result in language use that bears a resemblance, direct or indirect, to the way language is used in the real world. Like other language activities a task can engage productive or receptive, and oral or written skills and also various cognitive processes (p.16).

This definition aligns with the communicative approach in which a task targets both process and product. This definition explains that a task has an outcome/ product, which involves using language as it is employed in the real world. A task engages the students cognitively and students learn actively. To further elaborate on the cognitive processes, one may examine the definition provided by Breen (1987, cited in Nunan, 2004):

Task is assumed to refer to a range of work plans which have the overall purposes of facilitating language learning – from the simple and brief exercise type, to more complex and lengthy activities such as group problem-solving or simulations and decision-making. (Breen 1987, cited in Nunan, 2004, p.23)

Using the language to perform a task is also related to experiential learning or ‘learning by doing’ as Nunan (2004) argued. Nunan(2004) reported that this concept had been brought to language teaching by Kohonen (1992). Nunan (2004) discussed the concepts carried by Kohonen’s (1992) model, as can be seen below:

- Encourage the transformation of knowledge within the learner rather than the transmission of knowledge from the teacher to the learner.
- Encourage learners to participate actively in small, collaborative groups (I see group and pair work as important, although I recognize that there are many contexts where class size makes pair and group work difficult).
- Embrace a holistic attitude towards subject matter rather than a static, atomistic and hierarchical attitude.
- Emphasize process rather than product, learning how to learn, self-inquiry, social and communication skills.
- Encourage self-directed rather than teacher-directed learning.
- Promote intrinsic rather than extrinsic motivation. (p.12)

These learning goals are applicable to both approaches. Lu and Corbett (2012), in comparing the two approaches, stated that TBL and PBL are very similar and are both based on experiential learning.

Students learn complex content and skills most effectively, not when they are subjected to information-rich lectures, supplemented by a facilitator, they are engaged in problem-solving activities towards a particular end. In this respect, both PBL and TBL fall into the broad category of ‘experiential learning’ (chapter 4, Section 3, paragraph 10).

The notion of co-operative learning that we find in experiential learning also stands in interactionist theories of learning that underline PBL and TBL. Like PBL, TBL is said to be anchored in socio-constructivism. Ellis (2003) argued that many studies have associated TBL with Vygotsky’s Theory of learning.

A number of studies have drawn on Vygotskian accounts of language learning. These view learning as socially constructed. When L2 learners have the opportunity to interact with other users of the language, for example, a teacher, a native speaker, or another learner, they are able to perform functions in the language which they cannot perform by themselves” (p.24).

Similarly, Arnold (1999) stated that a shift to constructivist knowledge development to reach effective language instructions in the 1980s marked the rise of Task-Based Learning: “a renewed focus on small group or task-based learning which affords students the opportunity to develop a range of cognitive, meta-cognitive and social, as well as linguistic skills while interacting and negotiating in the classroom” (p.226). She also explained that TBL enhances cooperative learning, which, according to her, is beneficial in the same way for all types of learners from weak or good students. PBL, as discussed above, also enhances team-work and co-operative learning, creating opportunities for learners to interact and negotiate meaning. However, group work is not a must in task-based learning in the way it is in PBL, which means a task can be performed by one or two students in some situations. In PBL, discussed in the previous sections of this chapter, learners are grouped in teams of about seven members who cooperate to reach an objective. They work inside and outside the classroom over a long period of time, even for a single problem. Therefore, cooperation has a broader meaning.

Ellis (2003) also showed how TBL is compatible with Long’s Interaction Hypothesis, which values meaningful input and interaction between learners so that language learning occurs. This hypothesis “claims that the best ‘input’ for language acquisition is that which arises when learners have the opportunity to negotiate meaning in exchanges where an initial communication problem has occurred” (p.23). In PBL

students also interact, negotiate meaning, agree, and disagree, and, therefore, it may be hypothesized that PBL can enhance language acquisition and production.

Ellis (2003) reported that other researchers showed how TBL can fit into Levellet's Model of Speech Production (Levellet, 1989). This model, as Ellis (2003) explained, comprises three phases in speech production:

(1) conceptualization, when the purpose and semantic content of a message is determined; (2) formulation, when the speaker maps grammatical and phonological features onto the preverbal message; and (3) articulation, when the phonetic plan produced by (2) is converted into actual speech (p.25).

PBL can also be associated with this model for many reasons. In PBL, the learners discuss the content of a problem scenario and their understanding of this problem, which can be matched with the first stage. The students then map and plan their ideas together, as with stage 2. After that, the students interact to share their understanding, divide the work, and produce an initial plan. At this stage, they can also report their initial plan to the tutor. A PBL tutorial does not end at this stage though, and has more to offer to a second language learner while they are engaged in the remainder steps of the work.

As discusses in this chapter, PBL adheres to humanistic theories of learning. Similarly, Ellis (2003) reported that TBL fits in with these approaches.

Perhaps one of the earliest proposals for task-based teaching is that associated with humanistic language teaching. Humanistic principles of education emphasize the achievement of students' full potential for growth by acknowledging the importance of the affective dimension in learning as well as the cognitive. Humanistic approaches encourage learners to recognize their feelings and put them to use by caring for and sharing with others, thereby increasing their self-esteem and their motivation to learn (p. 31).

Chini (2008) based on Pastor (2005) reported that TBL replaces the traditional monotonous approaches by engaging learners in research and the negotiation of meaning.

« S'il est une fonction du langage que les contextes scolaires d'apprentissage sont bien mieux en mesure de développer que le milieu naturel, c'est bien la fonction métalinguistique », par quoi il n'entend parler « ni du simple énoncé de règles et de normes ni d'exercices décontextualisés et répétitifs, mais d'activités de recherche, d'observation, de collecte de données, d'argumentation entre groupe d'élèves confrontant des hypothèses contradictoires (Chini, 2008, p. 179).

If one considers all the activities involved in TBL, such as observation, collecting information, and negotiation, one begins to think of PBL rather than TBL in terms of their contemporary applications.

In task-based learning, students are engaged to fulfill a meaningful activity in an anxiety-free working environment for a purpose. Students' interactions and experiences are key issues during task realization. Like problem-based learning, task-based learning is said to increase students' motivation and promote their autonomy. A task is defined as an activity "where the target language is used by the learners for a communicative purpose in order to achieve an outcome" (Willis, 1996, p. 26). In the following excerpt, Bourguin, Halluin and Hoogstoel highlighted some steps in TBL. For instance, learning starts with a situation given in the task. This situation is unpredictably transformed during the process of learning. This concept in task-based learning has been forged by the theory of activity;

La Théorie de l'Activité explique que la situation n'est jamais donnée à l'avance et qu'elle est le résultat d'interactions. Ceci ne signifie pas qu'il n'existe pas de situation donnée au début de l'activité, mais que cette situation va évoluer de façon imprévisible au cours de l'activité. Ainsi, l'activité débute avec une situation initiale donnée dans la tâche. Cette situation est partagée par les sujets impliqués dans l'activité, elle est transformée par le processus de réalisation de la tâche et conclut dans un état final. (Bourguin et al.; p.4)

The PBL tutorial also starts with a situation in the form of a problem that is shared by a team of learners who try to understand it together, sort it out together, and come up with one or different solutions. However, how true is this? The problem is ill-constructed, which means not all the information is given to the learner. The learner has his/her own share of input to contribute. The problem, most of the time, involves making decisions about how to sort out an issue. In PBL, the teacher is a facilitator; s/he uses different techniques, such as questioning to guide the team and has more objectives to fulfill. In PBL, the objective is not only autonomy in the use of language, but also self-directed learning and responsibility for one's own learning.

The 'know how' notion and the focus on the process of the students' learning is seminal in PBL. It is also important in TBL. TBL focuses on learners' linguistic needs and the task to be accomplished which might be related to the learners' professional needs. PBL, with no doubt, focuses on learners' professional needs. For an ESP course, learners' professional needs are a cornerstone and PBL takes them into account.

The notion of meaningful learning discussed in this chapter is one principle of PBL. It is also a learning principle in TBL. Narcy-Combes J.P. (2005) argued that in this regard, tasks give the L2 learner meaning to his/her learning while s/he observes language in use or uses it:

La tâche se définit comme une proposition d'activités pédagogiques faisant sens pour l'apprenant. Initialement, la tâche ne dépend pas d'hypothèses sur les savoirs, mais repose sur l'observation de situations de communication ou d'usage de la langue, et donc sur des données empiriques (p.49).

Eventually, it may be concluded that PBL and TBL are compatible and they serve similar learning goals. However, PBL has some other advantages over TBL. If one considers the psychology of memory, for instance, PBL tutorials are structured in a similar way that mimics the way memory works, which is not always true in TBL.

In the following section, learning principles in TBL and its characteristics will be discussed. These principles are very similar to those of PBL, as the underlying theories are the same.

11.7.2. Comparing Learning Principles in TBL and PBL

Nunan (2006) outlined eight principles that task-based learning uses and reinforces. These principles reflect the conceptual bases of the approach and are compatible with the goals of an ESP course: the lesson is based on students' needs, learning takes place through communication in the target language, materials are 'authentic', process is important in learning, and learner's experience is seminal for the students' learning. Task-based learning (TBL) shares at least the first four PBL characteristics mentioned below, and they both provide real context for meaningful active learning:

- *A needs-based approach to content selection*
- *An emphasis on learning to communicate through interaction in the target language.*
- *The introduction of authentic texts into the learning situation.*
- *The provision of opportunities for learners to focus, not only on language, but also on the learning process itself.*
- *An enhancement of the learner's own personal experiences as important contributing elements to classroom learning.*
- *The linking of classroom language learning with language use outside the classroom (Nunan , 2006, p.14).*

The same principles are applicable to PBL, especially when it is implemented in language learning. The needs of the learner are a main issue, as well as communication through the target language, authenticity of problem scenarios, a process-oriented focus, enhancement of the learner's personal experience, and the use of language that is related to the field of the learner as in the real world. These principles are replicated by Skehan (1998), who drew on a number of other writers to do so.

- Meaning is primary;
- Learners are not given other people's meaning to regurgitate;
- There is some sort of relationship to comparable real-world activities;
- Task completion has some priority;
- The assessment of the task is in terms of outcome (cited in Nunan, 2006; p. 16).

Ellis (2003) also associated tasks in TBL with the same principles, such as meaning in learning and language use in real world situations. He also pointed out the involvement of cognitive processes in the realization of any task, "such as selecting, reasoning, classifying, sequencing information, and transforming information from one form of presentation to another" (p.7).

11.7.3. Tasks versus Problems and Related Learning Outcomes

Narcy-Combes J.P (2005) explained that tasks are usually divided into *macro-tâches* and *micro-tâches*. In this section, importance is placed on tasks and their potential in language learning, which can parallel PBL in certain ways. Below is Narcy-Combes' J.P (2005) definition of task or *macro-tâche*:

La macro-tâche est le point de départ de la séquence pédagogique. Elle se définit comme un ensemble d'actions constituant une forme de "mise en scène" de la réalité, ou d'un type de fiction à laquelle les apprenants pourront adhérer. Elle conduit à une production langagière non limitée à l'univers scolaire (voir les "real-world activities" [EllisR03] : 3, et les "real world processes of language use", [EllisR03] : 10). Diverses situations repérées, dans la vie courante ou professionnelle, par exemple, permettent de construire des macro-tâches (Narcy-Combes J.P., 2005, p. 50).

In the quotation above, it can be seen that the task leads to the performance of a real world activity that can be accompanied by language use in real-life and where the learner has the option to use the language items they need and they want. This allows

learners' to control their learning, as advocated by theory about autonomous language learning. A problem-scenario in PBL is very similar to the meaning of task in task-based learning, although the steps are usually different.

An understanding of the distinction between *macro-tâches* and *micro-tâches* will be obtained when considering Ellis' (2003) differentiation between task and exercise. He explained that a task mainly focuses on pragmatic meaning rather than on form, while activity is concerned mainly with form; "tasks call for primarily-meaning-focused language use. In contrast, exercises are activities that call for primarily form-focused language use" (p.3). He further elaborated that "a task requires the participants to function primarily as 'language users' in the sense that they must employ the same kinds of communicative processes as those involved in real world activities" (p.3). In this language, learning is incidental; "an exercise requires the participants to function primarily as learners; here learning is intentional" (p.3). He added that while both forms are necessary in language learning, tasks have several advantages over exercises.

When looking at the definitions of macro-tasks and problem scenarios, there are several similarities. Problems in this chapter were also defined as real world activities that are experiential and simulate situations learners are supposed to face in their respective domains.

This returns to the notion of implicit knowledge and incidental learning of language that results from natural usage, as discussed in Chapter 6. This view is valid for *macro-tâches*/ tasks, as well as problem-based learning. Nunan (2004) argued that despite controversy in research, views now tend to confirm that language is developed through natural use when learners are focused on real-world problems. This is also the stance that was maintained in this study and explains the choice of PBL to teach ESP. This view is also valid in TBL.

Research has not been able to settle this question definitively and it remains of ongoing interest (Ellis, 2002). But Nick Ellis (2005, p. 306) has argued that the "bulk of language acquisition is implicit learning from usage. Most knowledge is tacit knowledge; most learning is implicit; the vast majority of our cognitive processing is unconscious". He does agree with Krashen (1982) that implicit and explicit learning are different, but, unlike, Krashen, he sees a role for explicit instruction and thus he can be seen to subscribe to a weak interface between the two types of knowledge, implicit and explicit (Nunan, 2004, p. 49).

Nunan (2004) outlined the difference between what he called *enabling skills* and *pedagogical tasks*, where enabling skills include ‘language exercises’ and ‘communicative activities’ and pedagogical tasks are rehearsal tasks and activation tasks. In terms of the latter he added another component, task achievement, which is beyond language learning and is a realization of a real-life task; “In pedagogical tasks, however, there is an outcome that transcends language: ‘Did the learners select the correct article of clothing according to the weather forecast?’ ‘Did they manage to get from the hotel to the bank?’ ‘Did they select food and drink items for a class party that were appropriate and within their budgets?’” (p. 57).

Among the tasks Ellis (2003) illustrated with is ‘Activity 3, in the figure below, where students have to listen and fill in information gaps from the listening passage.

Activity 3
New students

Lesson 1

Here are some information cards for four new students in Level 2 at the English Language Academy. Some information is missing from them. Listen to the conversation and write in the missing information about the new students.

New Students	
Name: <u>Gabriela</u> Country: <u>Portugal</u> Birth date: <u>8/25/50</u> Married <input checked="" type="checkbox"/> Single <input type="checkbox"/> Occupation: <u>doctor</u> Interest and hobbies: <u>reading & photography</u>	Name: <u>Samuel</u> Country: _____ Birth date: <u>2/4/65</u> Married <input type="checkbox"/> Single <input type="checkbox"/> Occupation: <u>student</u> Interest and hobbies: <u>classical music</u>
Name: <u>Kuniko</u> Country: <u>Japan</u> Birth date: _____ Married <input type="checkbox"/> Single <input type="checkbox"/> Occupation: _____ Interest and hobbies: <u>volleyball & swimming</u>	Name: _____ Country: <u>Morocco</u> Birth date: _____ Married <input type="checkbox"/> Single <input type="checkbox"/> Occupation: <u>doctor</u> Interest and hobbies: _____

Figure 47; Activity 3: The new student (p. 12)

As stipulated in the instruction, the students should listen to a passage and complete the table with missing information from the passage. This activity as Ellis argued fulfills the requirement of a task;

Activity 3, New students' (Madden and Reinhart 1987), entails three separate activities. The first requires students to listen to some information about four people and fill in missing information on forms. The second requires the students to fill in the missing words in a short written passage. The third asks students to ask their classmates questions in order to fill in forms. The first activity satisfies the defining characteristics of a task. (1) It constitutes a workplan. (2) The focus is on meaning. (3) The learners have to make their own selection of what words to use, as opposed to being provided with, say, multiple choice answers. (4) The kind of language behavior required is artificial but related to natural language use. (5) It is a linguistic activity. (6) It involves the cognitive process of identifying specific information. (7) There is a definite outcome (p.14-15).

This type of task involves 'missing information', but the gaps or blanks, as they may be called, are identified for the learners and the information needed to fill them in is provided in the listening passage. In PBL, gaps of knowledge are associated with the identification of gaps, meaning that students try to identify gaps in their own knowledge. This also means that different gaps of knowledge can be identified for different learners working on the same problem. Likewise, the process of filling these gaps involves library search, looking for information, selecting the appropriate information, making decisions, and planning. In PBL, the students have to consult resources themselves, understand the content, select the best content that can provide them with the missing information, and, therefore, judge the relevance of the content. Students need decision making at almost every stage of the problem solving process, which should help them develop self-directed skills and autonomous learning. Eventually, the concept of gap stands completely different in the two approaches.

Nunan (2004) further distinguished between two types of tasks reflecting the views of two different TBL proponents: focused/ 'meta-communicative' and unfocused tasks. The proponents of a 'strong' interpretation of TBL believe that there should not be any language usage restrictions on the learners while they are carrying out a task and that the learner should be allowed to use any language structure they know. This approach results in what is called unfocused tasks. Focused tasks, on the other hand, are tasks in which learners are told which structure to use. Willis and Willis (2004, cited in Nunan, 2004) claimed that, in TBL, for a task to be called a task students must be "*free to use*

any language they can to achieve the outcomes” (p. 53). In this sense, PBL is similar to meta-communicative type of tasks, as it encourages students to fulfill a task without setting borders or language use choices.

Tasks have also been classified in the literature (e.g., Nunan, 2004) as target or real-world tasks as well as pedagogical tasks that take place in the classroom. A pedagogical task is outlined below.

Pedagogical task: Activation rationale

Work with three other students. You are on a ship that is sinking. You have to swim to a nearby island. You have a waterproof container, but can only carry twenty kilos of items in it. Decide which of the following items you will take. (Remember, you can't take more than 20 kilos with you.)

* Axe (8 kilos)	* Box of novels and magazines (3 kilos)
* Cans of food (500 grams each)	* Packets of sugar, flour, rice, powdered milk, coffee, tea (each packet weighs 500 grams)
* Bottles of water (1.5 kilos each)	* Medical kit (2 kilos)
* Short- wave radio (12 kilos)	* Portable CD player and CDs (4 kilos)
* Firelighting kits (500 grams each)	* Rope (6 kilos)
* Notebook computer (3.5kilos)	* Waterproof sheets of fabric (3 kilos each)

Table 10; (Nunan, 2004, p 21)

Nunan (2004) acknowledged that this task has no ‘rehearsal rationale’, which means that the teacher did not use this task because s/he expects students to go through the same situation in their lives. The purpose of this task, as Nunan (2004) explained, is to encourage students to use a range of language functions and structures, including making suggestions, agreeing, disagreeing, talking about quantity, how much/ how many, wh-questions, etc.)”, at the students’ wish. This task engages the students actively; they communicate, and, according to Krashen’s (1983) interpretation of TBLT, this is enough for language acquisition.

This task creates a context for language practice. Students work in groups, they communicate and make a decision, and they might come up with different decisions. This situation often increases students’ motivation and engages them in speaking, as students become emotionally involved to defend their own opinions. However, the scope of a task

is limited in terms of time. This activity, for instance, would not take more than ten minutes of class time. How should it fit in the course is one of the issues that Ellis (2003) debates; “A key pedagogical issue is how a task can be fitted into a cycle of teaching?” (p.33). It has been suggested that a task can come between a pre-task and a post-task.

Ellis (2003) distinguished a task-based lesson into three chronologically ordered phases: the ‘pre-task’, which includes all activities teachers and students do before the task starts. The second phase is called the ‘during-task’, and it concerns activities ‘around the task itself’. This is the only compulsory phase, which means that “minimally, a task-based lesson consists of the students just performing a task” (p. 243). The last stage is ‘the post-task’. This phase involves doing activities that follow-up the task.

Regarding PBL, the PBL tutorial structure was already discussed in this chapter. It starts with the presentation of an ill-constructed problem to the learners. They first have to understand the problem, jot down all the information, know about and identify the information they do not know, and they need to solve this problem. Students divide the work, find the necessary information outside the classroom, summarize it, and bring it to class to share it with their classmates. Students work again and sometimes need to edit their original plan. They have to discuss things within the group and with other groups to present their findings in an oral or written form, or both. This work takes place over different sessions and requires a lot of time. At the end of each PBL tutorial, learners get feedback and have the chance to evaluate their peers as well as themselves. During the next tutorial, the students should have moved a step forward in their understanding of the learning cycle. They should also have developed strategies that should be further enhanced in future tutorials. In terms of knowledge, the learners work on a topic, and, during the different stages of PBL, they are supposed to gain knowledge they did not already have.

A crucial question that arises at this point is what pedagogical and learning potential does PBL have? The following problem scenario taken from the material designed for the purpose of this study can give insight into this approach and show how it differs from TBL.

Part 3: The Problem Scenario

The BBC News released this information in 2012.

Rabid Organ Transplant Kills Maryland Man



A man in the US state of Maryland has died of rabies, which he contracted from an infected kidney transplant more than a year ago, health officials say.

CDC officials say that both donor and recipient had a type of rabies usually linked to raccoons.

The early March death has led officials to treat three other patients who received organs from the same donor.

The Centers for Disease Control (CDC) say doctors did not suspect rabies as the cause of death in the donor and did not test for it.

Typically no more than three cases of rabies are diagnosed in the US yearly.

The donor died of raccoon rabies in Florida in 2011 after moving there from North Carolina.

"The organ transplantation occurred more than a year before the recipient developed symptoms and died of rabies," the CDC said, adding such an incubation period is much longer than usual but not unheard of.

<http://www.bbc.co.uk/news/world-us-canada-21807466>

The problem is that three other recipients got transplants from the same donor of the heart, liver and other kidney. They live in Illinois, Georgia and Florida. If you were the doctors following these cases what would you do? Decide in your group what these patients should do. Discuss your decision with the other groups. Prepare an oral presentation to present your arguments.

Box 5: A Sample of Problem Scenario in PBL, Course Material Designed for this Course

This problem scenario is authentic and it is taken from the real world of the medical community. These medical errors often happen in the medical context and

students should be aware of them. In addition to language practice, there is real-world knowledge, as opposed to artificial information, which might be found in TBL. Authenticity resides in content and task. As previously indicated, this is a cornerstone of ESP and PBL allows all this to take place very naturally. In terms of time, PBL needs several tutorials for students to go through the whole process of solving a problem. This is one reason why PBL fits better with ESP. The problems are taken from the students' domain and serve their professional needs. The students might face a similar situation in their future professional life, and, as Schmidt (2002) advocated, a similar context helps recall the knowledge someone possesses about something. In incidental language learning, people also learn chunks of sentences that they also use in similar information. In addition, the students will learn more medical terminology from their work context. This helps students to better meet their professional needs. The notion of students' needs is also seminal in ESP and it is fulfilled, at best, by PBL. The students will work together to make a decision. Similarly to task-based learning, students will use the language in context to communicate, to come to a decision, and to report it. They will need a big range of lexis and structure that they can select from.

What differs here is that students in this approach deal with a complex, ill-constructed problem. Not all the information is given to them. They have a situation; they have to understand it, and try to jot down what they know about this issue. Old knowledge (schemata) is activated. The students might ask these questions: 'What do I know about organ transplants?'; 'What do I know about rabies?'; 'What medical error cost a man his life?'; 'How could this error have been avoided?'; or 'What should be done to save the other patients who may have the same destiny?' Different possibilities and ways to tackle the question would be available. This variety of options for dealing with questions creates room for the negotiation of ideas. The learners have to further decide what would be the best option. As there is no right or wrong answer in PBL, students are not worried about the results they might reach, as their input is what really matters. They can learn from each other at this stage. Identifying what they know will help them identify their knowledge gaps, which is a crucial principle in the PBL tutorial. As with cognitive theories, these knowledge gaps are the starting point for the students' learning. In contrast to TBL, students have to look for the information they need

themselves and bring what they learn on their own to class to share with their other group members. This stage usually involves work outside the classroom and requires an independent learner who can use the library and other resources. While looking for necessary information, students are exploring information and constructing their knowledge. This step should result in self-directed learning skills. While they are exchanging knowledge with their peers, they are negotiating meaning and further constructing their knowledge. Students will remember more when they learn it themselves.

Even though PBL was not originally developed for language learning, it may be argued that it provides the students with a lot of opportunities to enhance their language skills. While they are transferring the information they find into writing and speaking, they are naturally integrating their language learning skills and using them for reading, writing, and speaking. They are also making use of language activities involving structure and lexis, and they may go through both explicit and implicit learning. They should also develop language strategies, such as paraphrasing, summarizing, and they are sensitized about plagiarism. Scaffolding from one tutorial to another should start fading as the learners gain responsibility for their learning. PBL will provide them with the opportunity to learn self-directed learning skills, become self-dependent, autonomous, and life-long learners.

Task-based learning proponents preach that students become autonomous, but to what extent? In PBL, students have no choice but to develop responsibility, as they have to find themselves the information they need. They learn with the group during the tutorial and individually while looking for the information. They work inside the classroom and outside it. Just like in real life, they live with this problem until it is sorted out. They learn at their own pace and they have to catch up with others' pace while working in a team. In PBL, students work in teams, but, in TBL, students can work in groups or individually. The word team does not have the same meaning as in a TBL group. As stated in Savin-Badin and Major (2011), the word team implies commitment, sharing, co-operating, and supporting one another, among other factors. Working as a team requires a lot of interpersonal skills. A team is formed to co-operate together for a period of time to reach a common objective. Another major difference between PBL and

TBL is the psychological bases regarding memory. Memory is taken into account in PBL, since information is deeply processed and is encoded in the way required. It is not new that medical students, unlike other fields of studies, have to learn a lot of vocabulary for their career.

In ESP, Stevens (1987) recommended that the course contains similar tasks, topics, and methodologies from the learners' domain. The notion of domain and content is better addressed in PBL. While tasks generally replicate real world problems, they are oriented to general English and its use in real situations. PBL targets real problems from the domain of the learner. Lexis learning should increase and it is learnt in context; language learning is incidental while learners are gaining content and knowledge of their subjects, and, therefore, language learning happens naturally.

Both tasks and problems provide a starting point for a learning situation similar to real world instances. While the aim of a task is mainly diverted to language production while fulfilling a real-world task, the aim of a problem is much wider. Language is used naturally in PBL to discuss the problem, to define knowledge gaps, and to prepare a plan of action. Language becomes a vehicle for knowledge rather than an end in itself and learning happens incidentally. In addition, the learners' attention is directed to knowledge and content in their domain. Language is used naturally to gain knowledge and skills of the domain of the learner.

The task-based approach does, to a certain extent, enhance students' autonomy, motivation, active learning, and their cognitive skills. However, it is difficult to claim that it can develop students' lifelong learning skills, self-directed learning skills, decision making skills, or enhance students' memories. PBL encapsulates the merits of TBL. It also gives the students the opportunity to develop other skills that are useful, especially if applied to ESP. Although TBL represents a move in language learning in terms of language use, cognitive processes, autonomy, and motivation, it does not seem to have the same potential as PBL. This is especially true for ESP, which emerges with other requirements that bypass linguistic needs, such as with career content.

In medical teaching, context is rich with scenarios that come from the learner's field. Eventually, PBL can use these scenarios to teach the content, discourse, and

register of the domain community. Exposure to the input of the target language in a way that is meaningful to the learner activates their memory strategies. This gives rise to a new approach of content and language teaching, which was discussed in Chapter 10 and called Problem Based Content and Language Learning (PBCLL).

From a didactic ergonomic perspective this initiative is encouraged; we are using the target discipline to sort out problems in language teaching for medical purposes. This argument can be backed up by the vision depicted by Bertin (2000) regarding this issue.

Chacune des disciplines constituantes doit être considérée par le chercheur comme un outil. L'évaluation de ses activités se fera donc par rapport à la question « ai-je bien utilisé votre discipline ? » et non par rapport à celle : « ai-je répondu à vos questions? ».

Le chercheur doit, pour chaque sujet d'étude, construire son propre cadre de référence par rapport à des théories déjà stabilisées. Pratiquement, c'est le sérieux de sa méthodologie qui fondera l'activité en tant que (future) science (p27).

The figure below summarizes the view of the two approaches, namely PBL in relation to language teaching and how it can give rise to PBCLL learning.

Maximizing ESP learning through PBL

Common learning concepts of TBL and PBL	Learning in TBL	Learning in PBL
<ul style="list-style-type: none"> • Action-Based learning <ul style="list-style-type: none"> - Interactionist approaches - Socio-constructivism - Cognitive constructivism - Affective learning theories - Experiential learning (learning by doing); Kolb’s Model (integration of action and reflection) - Cooperative learning • Language is used in the context of the domain of the learners; similar topics and tasks are carried out (easier retrieval of language knowledge) • Meaning in learning →Deep processing <li style="text-align: center;">↓ 	<ul style="list-style-type: none"> • Focus on form and meaning in language learning/ language activities enhance explicit learning • The learning cycle is mainly composed of a pre-task- during and after-task <ul style="list-style-type: none"> - The initial situation is given to the learner; - Input is provided; - Meaning is negotiated; - Outcome can be unpredicted - A task can be done in a matter of minutes - Tasks can be conducted in groups in pairs or even individually. 	<ul style="list-style-type: none"> • Focus on meaning and content; language learning is incidental and can become implicit. → natural language learning is maximized • Content and knowledge of the domain of the learner is activated, used in context and extended as in CBI. <li style="text-align: center;">↓ <li style="text-align: center;">Discourse and register of the target learner’s field language is used, practiced and extended; • Learning occurs as in the cognitive model learning → strategies are used to encode knowledge in the memory.

<p>Incidental language learning</p> <p style="text-align: center;">↓</p> <p>Better recall of language</p> <ul style="list-style-type: none"> • Learners' autonomy • Learners' motivation →Enhancing L2 learning 		<ul style="list-style-type: none"> • The learning cycle involves several stages: <ul style="list-style-type: none"> - Learners are provided with an ill-constructed problem scenario (not all the information is given to the learner→ enhance cognitive skills) - Learners identify their gaps of knowledge and have to find information on their own to fill these gaps→ Self-Directed Learning Skills - Learners share their work→negotiation of meaning+ cooperative learning - Outcome is unpredicted and possible answers and approaches to deal with a problem scenario are accepted - Work can take several sessions and progresses as in real-life requiring editing and re-editing. - Team work is required <p style="text-align: center;">↓</p> <p>PBL combines learning strategies content and language</p>
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Table 11: Problem-Based Content and Language Learning (PBCLL)

11.8. Summary

In terms of compatibility with language learning, it is hypothesized that PBL can be used to teach language, as it is similar to task-based learning in many ways. It can also enhance learners' abilities to learn a language, teaches them more effective learning strategies than translation, and gives them the opportunity to use the language in a genuine way, as it was recommended by teachers based on the NA.

PBL should work well when applied to ESP learning for many reasons. First, ESP is open to the use of the methodologies of the discipline it serves, as it has already been argued in this study (Dudley-Evans & St John, 1998). Second, ESP focuses on students' needs and intrinsic interest, and so does PBL. Another reason is that PBL provides learners with the context needed to learn in a meaningful way, encourages co-operative learning, allows meaning negotiation, increases students' motivation, and gives them the opportunity to agree and disagree. In a word, it provides all the conditions for language learning to take place at best. In addition, ESP learners need to learn the language in the context of the field of their work and studies, and in PBL students have to work on a case that stems from similar situations that they would meet in their jobs or studies.

Like PBL, ESP was affected by developments in educational psychology, which value learners' experiences in the construction of their knowledge. Fischer (2008) explained why PBL is suitable for ESP learning.

By introducing the PBL model into teaching languages for specific purposes (LSP), a shift can be made from the text-based approach for developing the traditional four language skills to a new way of teaching foreign languages. This model is especially appropriate for combining professional knowledge with the knowledge of a foreign language and thus for teaching languages across the curriculum. This approach also offers an opportunity for co-operation between the language teacher and the subject specialists, and thus for teaching languages for specific purposes (Fischer 2008, p. 13).

As we have seen already, problem-based learning provides real context and meaningful situations for learners in their future field of studies/work, which should motivate students to learn and to learn more effectively. This is what ESP learning requires. Lorenzo (2005) reminded us that ESP “*concentrates more on language in context than on teaching grammar and language structures*” (p. 1). He also pointed out that as ESP is usually delivered to adult students and in a work related setting (EOP),

motivation to learn is higher than in usual ESL contexts. Carter (1983) believed that self-direction is important in the sense that an ESP course is concerned with turning learners into users of the language (Brunton, 2009). This coincides with the view of language in the present study. PBL provides all the requirements for effective language learning, since language is used in context for a purpose. From an ESP perspective, PBL is student-centered and it is geared towards students' needs in their fields of study or work.

In PBL, the problem sets the scene and provides a context for learning. Empirically, it is proven that PBL increases students' motivation and enhances self-directed learning (Norman & Schmidt 1992). Indeed, these are the goals of ESP learning. ESP, as has been seen, has gone through different phases, register analysis, and discourse analysis to meet students' needs. Similarly, we recommend PBL as a solution to meet learners' needs in the medical school, as previously discussed in our context.

Like PBL, ESP was affected by developments in educational psychology, which value learners' experiences in the construction of their knowledge. Both PBL and ESP are learner-centered approaches. As this study investigates the impact of PBL on EMP learners, a whole portion is devoted to discussing this approach as implemented in ESP. However, before proceeding further, it is important to assess the current ESP teaching and learning situation and demonstrate how the PBL approach can pull out the merits of all these preceding approaches to LSP, in general, and, ESP in particular.

In the literature, the problem-based learning approach has been empirically proved as efficient, especially in medical studies (not oriented to language teaching though) in the retention and recall of information. In this approach, students also engage in a lot of reading and are exposed to different types of discourse while looking for information to deal with a case or a problem. Eventually, it may be argued that PBL can serve CBI approaches by providing them with the 'how to teach', thus gaining a new ground in teaching both language and content in a structured way that allows the development of learning strategies.

Chapter 12: Summary of Part I and Epistemological Stance

Narcy-Combes J.P. (2005) described this part of the PhD thesis as the conclusion of the theoretical part, which serves different purposes.

La partie dite « problématique » est en quelque sorte, la synthèse des synthèses et positionnements. Elle a pour objet de construire un tableau d'interactions et/ou une métaphore, et/ou un cadre théorique provisoire, dans le but d'aboutir à une redéfinition de la question de recherche et des hypothèses. Sa place se justifie fort bien après le cadre théorique auquel elle sert de conclusion logique. Elle peut alors précéder une reformulation de la question de recherche (des questions de recherche) ou de la conception de l'action à mener, cette reformulation conduisant à une définition des hypothèses qui sont faites au vu de cette problématique. La partie « problématique » est donc un lien bref, mais utile pratiquement, entre le cadre théorique qu'elle résume, et la partie consacrée à la méthodologie qui elle-même prépare le lecteur à l'exposé du travail de terrain. (p. 7)

This study was developed in the framework of action research, as described in the Anglo-Saxon tradition. It adheres to language didactics in LSP and tries to fill the gap in the literature about research in this field.

The argument goes on that most research in ESP has been geared towards students' needs in terms of course content and materials development rather than how to teach this content or how to develop students' learning strategies and promote their learning. Dudley-Evans and St John (1998) pointed out that the bulk of the literature in ESP has been preoccupied by what should be learnt and little had been said about theory. Hutchinson and Waters (1987) also argued that work in ESP had always focused on learners' needs and the type of language to be taught rather than how it should be taught, *'the destination rather than the journey'*. They argued that register analysis, discourse and genre analysis, as well as skill-based approaches are all preoccupied with the development of course materials for different fields addressed from a linguistic perspective rather than a pedagogical one.

Hutchinson and Waters (1987) claimed that their own approach, the "learning centered approach", addresses the process of learning rather than the destination. It is true that they addressed key factors involved in learners' learning, such as motivation. However, they did not present any specific approach, they argued that ESP itself is an

approach as in the model discussed at the beginning of this work which involves the choice of a methodology, course design, material selection, and so on and so forth. They also defined ESP as an extension of TESOL or TEFL and argued that it is taught in the same way as any other type of English.

Dudley-Evans and St John (1998) advanced the claim that ESP can use the methodologies of other disciplines it serves. In their work, they briefly described a few examples of teaching methodologies that are applicable to an ESP course, such as case studies and project work, without a deep discussion of their origins and without any references to epistemological foundation. They also did not state any reference to field work studies or the application of these methods.

Generally in the literature, some articles have addressed these pedagogical issues of using task-based case studies (e.g., Jackson, 1998), but there was no reference to empirical work that can enlighten the reader about real classroom practices and how we can put theory into practice. Basturkmen (2006) reported that Jordan (1997) surveyed the literature in ESAP and concluded that “The surveys cover a wide range of topics but do not deal with theory and ideas in detail” (p.4). This leaves ESP, as Dudley Evans and St John (1998) admitted, “theoretically a non-established field” (p. 4). Similarly, in a more recent source, as already mentioned in the introduction to this study, Mompean (2013) recommended that this issue of teaching in LSP has to be addressed. In CBI or CLIL, the idea was to make the course ‘content driven’ and teach both language and content, which tallies with the view in this study. However, these approaches did not provide particular teaching methods to achieve this purpose and we believe that PBL can do so. It was argued in Chapter 11 that PBL can become PBCLL if applied to ESP or EOP.

From a local perspective, this study seeks to introduce pedagogical changes in order to solve the problem of passive learning identified in the needs analysis and make students gain autonomy in English language learning, which will help them to learn their subjects in the future.

However, from a broader spectrum, this study seeks to contribute to the field of language didactics by filling the above explained gap in the literature and bringing in a new approach, namely problem-based learning, which is epistemologically sound and

should make ESP theoretically established. This approach as it was explained can be promising in combining the context of the field, content, language and skills.

To build the object in this study, an ergonomic didactic model was used, which fits in the theories of complexity as explained in Chapters 2 and 3. The concepts of language, learning, the learner, the teacher, ESP, and PBL were considered. We concluded that language learning, in general, and ESP, in particular, is a complex process which involves interdisciplinarianism, and it was concluded that this allowed the integration of PBL, a methodology in medicine, to teach ESP.

This idea will be empirically tested in the next part of this study. Although PBL seems to have several potentials, the major focus in this study was on issues that are related to the students' learning that were identified in the NA, such as the problem of passive learning. Eventually, the following question will be addressed: 'Can PBL be a remedy for EAMP learners' passive language learning?'

In addition to answers to this major question, we are looking for other results that can arise during the intended observation, questionnaires and interviews with the learners. We have research questions that emerged from our readings that can be stated as follows:

- To what extent can PBL teach content, language and develop students' learning strategies and emerge as PBCLL?
- Can PBL solve PYHC's learners' learning problems and equip them with the needed learning strategies?
- Can PBL help them develop PYHC learners' knowledge in their field?
- What is the impact of PBL on the learners' language skills?
- What merits can the approach bring?
- What are the limitations of this approach in our context?

In the following part, the empirical stage, we will discuss the research methodology; present the research methods which we used during the implementation of PBL for data collection; and report the research results to answer the aforementioned questions.

Part II: Empirical Work

Chapter 13: A Qualitative Research Study

In order to explain why we adopted the qualitative research paradigm, it is useful to remind the reader of our epistemological stance as well as our research objectives. In chapter 2, we stated that we adopted Systemics and DST in order to cope with complexity and account for the general impact of PBL on EAMP learners in the study learning situation. In chapter 3, we followed a constructivist model of language learning. At this stage, we adhere to the qualitative paradigm which seems to be compatible with this thinking and can allow us to reach our research objectives. In line with our choice, Darlaston-Jones (2007) argued that the qualitative research paradigm fits best when we seek to understand the whole picture of the learning environment with its different interactions and constraints.

By accepting the social constructionist view of the world that reality is constrained by the socio-cultural-historical-temporal space in which it occurs and by the persons involved in it we are required to use research methodologies that are able to extract the degree of detail often obscured by more traditional methods. Qualitative methodologies provide the means to seek a deeper understanding and to explore the nuances of experiences not available through quantification (Darlaston-Jones, 2007; p. 25)

Throughout this work, we stated that we want to study the impact of PBL on learners of EMAP in an empirical study to find out whether this teaching methodology can solve the identified students' learning problems in the research institution and to find out any other effects this approach can have on learners in general. Our research is therefore holistic and personalistic. Snape and Spencer (2003) explained that "qualitative methods are used to address research questions that require explanation or understanding of social phenomena and their contexts. They are particularly well suited to exploring issues that hold some complexity and to studying processes that occur over time" (p.5).

In a nutshell, the qualitative research methodology seems to be in harmony with our epistemological stance. Below, we will look at the qualitative paradigm and show how it facilitated the procedure of our research study and its design. Cohen and Manion (2000) explained that methodology aims at helping us to understand "not the products of scientific enquiry but the process itself" (p. 39). We will first start looking at the

qualitative paradigm and how it distinguishes itself from its counterpart the quantitative model; we will also consider the compatibility of qualitative research with action research; explain our research design; and present the methods of data collection we selected from the qualitative paradigm.

13.1. Qualitative and Quantitative Research Paradigms and Underpinning Epistemology

Research methodologies are usually classified into two pure research paradigms: qualitative and quantitative. Other classifications which include mixed paradigms also exist, but we will focus on the qualitative model in this study. Qualitative research comes in different labels as reported by Stotsky and Mall (2005).

The terms qualitative, holistic, phenomenological, hypothesis-generating, participant-observational, ethnographic, longitudinal, humanistic, naturalistic, field-based, interpretivistic, or hermeneutical are often used interchangeably, even though some researchers do not see them all as interchangeable; unfortunately, no clear definitions can be found that distinguish among all these various terms (p.6).

The same goes for the quantitative research; Stotsky and Mall (2005) stated that “the terms positivistic, scientific, hypothesis-testing, or quantitative are also often used interchangeably” (p.6). Nunan (1992) explained that these two paradigms are based on two different ways of viewing and interpreting our world.

One reason for the persistence of the distinction between quantitative and qualitative research is that the two approaches represent different ways of thinking about and understanding the world around us. Underlying different research traditions and methods is a debate on the nature of knowledge and the status of assertions about the world, and the debate itself is ultimately a philosophical one (p10).

In reality, the interpretive paradigm emerged as a reaction to the positivist one with opposing views of the world on how social phenomena can be investigated as Snape and Spencer (2003) reported. Snape and Spencer depicted how interpretivism opposed positivism. While positivism assumes that all human behavior is rule-governed and that it can be investigated in the same way as natural sciences, interpretivism preaches exploratory methods to investigate the social world and to understand associated human behaviors.

Positivism which holds that methods of the natural sciences are appropriate for social enquiry because human behaviour is governed by law-like regularities; and that it is possible to carry out independent, objective and value free social research. The opposing view, known as **interpretivism**, claims that natural science methods are not appropriate for social investigation because the social world is not governed by regularities that hold law-like properties. Hence, a social researcher has to explore and understand the social world through the participants' and their own perspectives; and explanations can only be offered at the level of meaning rather than cause (p. 23).

Cohen and Manion (2000) also explained the philosophical thinking underpinning these two paradigms which they referred to as interpretive and normative. They showed their basic differences and how the interpretive paradigm distinguishes itself in the way it focuses on the understanding of the individual.

The normative paradigm (or model) contains two major orienting ideas: first, that human behavior is essentially rule-governed; and second that it should be investigated by the methods of natural science. The interpretive paradigm, in contrast to its normative counterpart, is characterized by a concern for the individual. Whereas normative studies are positivist, all theories constructed within the context of the interpretive paradigm tend to be anti-positivist (p.36).

Stake (2010) described the qualitative paradigm thoroughly in the box below:

1. **It is interpretive.** It keys on the meanings of human affairs as seen from different views.
 - Its researchers are comfortable with multiple meanings.
 - They respect intuition.
 - On-site observers keep some attention free to recognize unexpected developments.
 - It acknowledges the fact that findings and reports are researcher–subject interactions.
2. **It is experiential.** It is empirical. It is field oriented.
 - It emphasizes observations by participants, what they see more than what they feel.
 - It strives to be naturalistic, to neither intervene nor arrange in order to get data.
 - Its reporting provides the reader of the report with a vicarious experience.
 - It is in tune with the view that reality is a human construction.
3. **It is situational.**
 - It is oriented to objects and activities, each in a unique set of contexts.
 - It makes the point that each place and time has uniqueness that works against generalization.
 - It is holistic more than elementalistic, not reductively analytic.
 - Its designs seldom emphasize direct comparisons.
 - Its contexts are described in detail.
4. **It is personalistic.** It is empathic, working to understand individual perceptions. It seeks uniqueness more than commonality; it honors diversity.
 - It seeks people’s points of view, frames of reference, value commitments.
 - Often issues are emic (emerging from the people) more than etic (brought by researchers).
 - Even in interpretations, there’s preference for natural language, disdaining grand constructs.
 - The researchers are ethical, avoiding intrusion and risk to human subjects.
 - The researcher is often the main research instrument.

Box 6; Special characteristics of Qualitative Study (Stake, 2010; p. 15)

In this description, we can further understand the philosophical underpinning of this approach. Qualitative research emancipates diversity of interpretations and findings and it is context-dependent. Reality is constructed in a natural, control-free environment where both researcher and subject interact and have their say.

In the box below, Reichardt and Cook (1979, in Nunan, 1992) compared the qualitative and quantitative methodologies and delineated their proper characteristics. Here we can further see what qualitative research is and what it is not as we consider the features of its counterpart.

Qualitative research	Quantitative research
<ul style="list-style-type: none"> • Advocates use of qualitative methods • Concerned with understanding human behavior from the actor’s own frame of reference • Naturalistic and uncontrolled observation • Subjective • Close to the data : the ‘insider’ perspective • Grounded, discovery oriented, expansionist, descriptive and inductive. • Process-oriented • Valid: ‘real’, ‘rich’, and ‘deep’ data • Ungeneralisable : single case studies • Assumes a dynamic reality 	<ul style="list-style-type: none"> • Advocates use of quantitative methods • Seeks facts or causes of social phenomena without regard to the subjective states of the individuals • Obtrusive and controlled measurement • Objective • Removed from the data: the ‘outsider’ perspective • Ungrounded, verification-oriented, confirmatory. reductionist, inferential and hypothetical-deductive • Product-oriented • Reliable : ‘hard’ and replicable data • Generalisable : multiple case studies • Assumes a stable reality.

Table 12; Terms commonly associated with quantitative and qualitative approaches to research (adapted from Reichardt and Cook 1979, in Nunan, 1992, p. 4)

In the comparison above, we can see the same features stated in the previous resources, but we also want to emphasize the last point which is compatible with our epistemological stance; qualitative research “assumes a dynamic reality” just as in DST and Systemics.

These characteristics are further depicted by Nunan (1992) who used the term ethnographic to refer to qualitative research. He attributed six characteristics to this type of research methodology: it is situational or ‘contextual’, ‘unobtrusive’, ‘longitudinal’, ‘collaborative’, ‘interpretive’ and ‘organic’.

In the first place, the research takes place in context, with an attempt to minimize the disruption caused by the researcher’s intrusion. The researcher does not attempt to control or manipulate the phenomena under investigation. The research is relatively long-term, taking place over several weeks, months or even years. It entails the collaborative involvement of several participants, including the researcher, the teacher and the learners. Finally generalizations and hypotheses emerge during the course of the data collection and interpretation rather than being predetermined by the researcher (p56).

We can see from the description above the close association as well as the compatibility between the qualitative paradigm and action research as described in Chapter 1.

- Unlike quantitative research, the qualitative approach is ‘personalistic’, it seeks to understand the individual in his/her environment. It is holistic; a characteristic that is attributed to action research.

- Qualitative research is naturalistic. It honors diversity. This action research will consider individual learners in their dynamic learning situations and the different changes that each individual can undergo.

- Qualitative research values the ‘insider’ view and it is anchored in the observer’s reality just like action research.

- Qualitative research is not generalisable. Findings in action research are not necessarily generalisable either. They are situational and context-specific.

- Qualitative research accounts for changes inside the classroom and emergence of new processes. Similarly, action research is flexible and its procedure can be amended during its realization.

- Qualitative research is empirical, and so is action research.

This view can make more sense when we consider the historical relationship between action research and the qualitative paradigm. Snape and Spencer (2003) reported that among the movements which showed the need for interpretivism and an equal involvement of the research participants are the feminist movement and action research. They elaborated that “the use of ‘action research’ - whereby research findings feed directly back into the environments from which they are generated - was widening, inspired by similar demands for more participatory and emancipatory research processes” (Snape and Spencer, 2003; pp. 9-10). Although both qualitative and quantitative research paradigms are acceptable in action research (Raby 2003; Macaire 2010), Snape and Spencer’s (2003) explanation further supports our choice of the qualitative model.

Our stance coincides with Nunan’s (1992) who explained that there is a need for qualitative studies to understand the whole ‘puzzle’ rather than ‘jigsaw pieces’ of a learning situation.

The different conceptions of 'truth', 'reality' and 'evidence' held by some language researchers is one reason for the growing attention being paid to the use of ethnographic techniques for gathering and analysing language data. Interest in finding alternatives to formal experiments has also been stimulated by a scepticism over the ability of psychometry to 'produce the definitive answers that some researchers expect (p.52).

Similarly, Stotsky and Mall (2005) argued that while the holistic approaches account for the different dimensions of classroom research as a whole, the positivistic analytic approaches fail to do so; "Researchers use qualitative methods to investigate how language teaching and language learning take place in the complexity of their natural settings" (p. 7). They added that the researcher does not isolate factors and then study them. In contrast, s/he looks at different factors interacting together in one complex situation where learning takes place. Stotsky and Mall (2005) argued that qualitative studies "may more often seek to describe the process of language teaching and learning in its natural settings and to understand the meaning of what happened in the classroom from both the researcher's and the participants' perspectives" (p.11).

Action research, therefore, fits into the holistic tradition of research that allows the researcher to deal with his environment as opposed to the positivistic stance that seeks to break variables into individual instances, isolate and control them. From what we stated above we can see that qualitative research methodology is compatible with action research in many ways, particularly in answering our research questions.

To complete the picture of the qualitative paradigm in association with action research, it is useful to look at its functions. Here, we can refer to Ritchie (2003) who identified taxonomy of the functions of qualitative research as:

- Contextual - describing the form or nature of what exists
- Explanatory - examining the reasons for, or associations between, what exists
- Evaluative - appraising the effectiveness of what exists
- Generative - aiding the development of theories, strategies or actions (p.27).

Regarding evaluation referred to in the third point in the statement above, she explained that qualitative research is associated with two types of enquiry: formative and summative evaluations. She reported that formative evaluation is concerned with the

assessment of an existing plan for the purpose of change and improvement while summative evaluation seeks the assessment of an intervention.

In brief, formative evaluations are designed to provide information that will help to change or improve a programme or policy, either as it is being introduced or where there are existing problems with its implementation. Summative evaluation is concerned with the impact of an intervention or policy in terms of effectiveness and the different outcomes that have resulted (Ritchie, 2003; p.30).

We can deduce a close connection between these two modes of evaluation and action research. In its diagnostic stage, action research is concerned with the identification of the existing problems in a given situation. In its therapeutic stage, it is concerned with the evaluation of the outcome of an intervention. So both forms of evaluation are applicable to action research. This discussion takes us to the next section: research design.

13.2. Research Design

In this section, we will differentiate between research design in the qualitative and quantitative paradigms. Seliger and Shohamy (1990) pointed out that in qualitative research there is “no set of standard designs or procedures such as exist in experimental research” (p.121). They stated that design is rather ‘emergent’ proceeding from general to specific. It is true that qualitative research is usually inductive proceeding from general to specific. However, it sometimes requires the two processes as explained by Snape and Spencer (2003). They stated that the epistemological debate regarding empiricism and interpretivism involves the notions of induction and deduction. They added that although qualitative research is often associated with induction, it can involve both processes at different stages.

Induction looks for patterns and associations derived from observations of the world; deduction generates propositions and hypotheses theoretically through a logically derived process. Although qualitative research is often viewed as a predominantly inductive paradigm, both deduction and induction are involved at different stages of the qualitative research process (p.23).

Qualitative research can also be interventionist. However, intervention is often associated with positivism as we can see in Van Lier’s (1988) diagram, cited in Nunan (2002). This diagram shows how research can be classified according to its degree of selectivity and intervention.

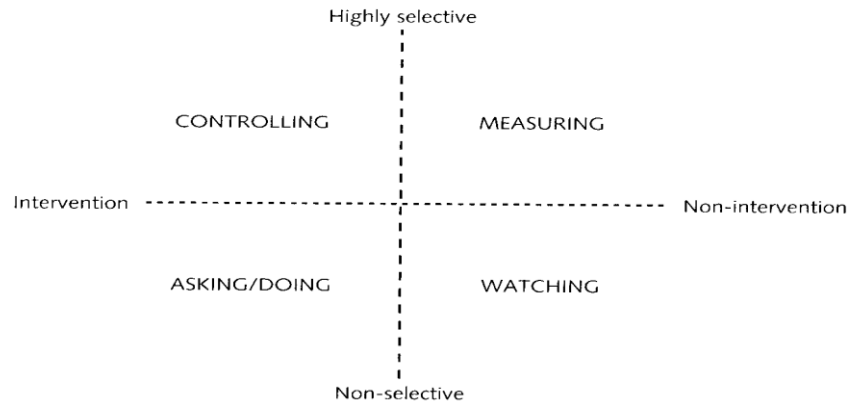


Figure 49; Parameters in Research Design (Van Lier, 1988, cited in Nunan, 1992, p.7 and in Brown, 2004, p. 482)

Van Lier presented two parameters in this figure: the interventionist and the selectivity parameter. As Nunan explained, Van Lier argued that research in applied linguistics can be interpreted according to these two parameters.

Research is placed on the interventionist parameter according to the extent to which the researcher intervenes into the environment. A formal experiment which takes place under laboratory conditions would be placed at one end of the interventionist continuum/ parameter, while a naturalistic study of a classroom in action would be placed at the other end of the continuum. The other parameter places research according to the degree to which the researcher prespecifies the phenomena to be investigated (Nunan, 1992; p.5).

Nunan further explained that these two parameters intersect to create four ‘semantic spaces’ as we can see in the figure above: “‘a controlling’ space, a ‘measuring’ space, an ‘asking/ doing ‘space’, and a ‘watching’ space” (p.5). He explained that the qualitative paradigm is illustrated at the far right of the diagram and therefore consists of watching and asking. While the quantitative paradigm is associated with the other extreme of the diagram and it is associated with intervention and selection. This entails that moving from one side to another can change the type of the research to a mixed paradigm.

In fact, many other classifications of research have been traced by researchers based on different criteria, Brown (2004) surveyed these paradigms and reported the following:

Applied linguistics research can be described from many different perspectives including at least (1) the contextual factors involved in applied linguistics research, (2) van Lier’s parameters of educational research design, (3) Grootjahn’s data

collection methods, data types, and data analysis procedures, (4) other sets of research characteristics, and (5) the qual-quant continuum (p.479).

Grotjahn's (1987) data collection methods in applied linguistics cited in the statement above was also, reported in Nunan (1992). Grotjahn provided an alternative categorization of research based on the methods of data collection, the type of data collected and the type of analysis of the data. This led him to identify eight research paradigms: two pure forms and six mixed forms.

<p>Pure forms:</p> <p>Paradigm 1: exploratory- interpretative non-experimental design qualitative data interpretive analysis</p> <p>Paradigm 2: analytical-nomological experimental or quasi-experimental design quantitative data interpretive analysis</p> <p>Mixed forms:</p> <p>Paradigm 3: experimental-qualitative-interpretative experimental or quasi-experimental design qualitative data interpretive analysis</p> <p>Paradigm 4: experimental-qualitative-statistical experimental or quasi-experimental design qualitative data statistical analysis</p> <p>Paradigm 5: exploratory-qualitative-statistical non-experimental design qualitative data statistical analysis</p> <p>Paradigm 6: exploratory-quantitative-statistical</p>

<p>non-experimental design</p> <p>quantitative data</p> <p>statistical analysis</p> <p>Paradigm 7: exploratory-quantitative- interpretive</p> <p>non-experimental design</p> <p>quantitative data</p> <p>interpretive analysis</p> <p>Paradigm 8: experimental- quantitative- interpretive</p> <p>experimental or quasi-experimental design</p> <p>quantitative data</p> <p>interpretive analysis</p>

Table 13: Types of research design (from Grotjham 1987: 59-60, cited in Nunan, 1992; p.6)

In this research, we used structured observation which was analysed quantitatively and according to these qualifications our research will be identified as a mixed paradigm. However, if we consider the following arguments, we can still consider it as a qualitative study as its aim to deeply study individual behaviors in a natural context.

For instance, Ritchie (2003) argued that approaches to data collection in qualitative research “can be divided into two very broad groups - those that focus on naturally occurring data and those that generate data through the interventions of the research” (p.34). Eventually, intervention in research does not necessarily mean positivism. The degree of control however, can move the research to the other side of the paradigm, such as in Van Lier’s figure.

For this research and in the framework of action research, we have gone through two phases: the diagnosis stage and therapeutic stage as Cohen and Manion (2000) called them. This study started with a diagnosis of the learning problems impeding L2 development in our context in a needs analysis. The needs analysis showed that the major problem was learners’ passive learning which, in turn, was the result of several practices in the research institution. Phase two, or the therapeutic stage, consisted of the

implementation of PBL in the teaching/learning of English as a remedy to this particular problem. Three indicators of autonomy were identified in the literature as in figure 42, Chapter 8, and were used in the construction of our research tools. These indicators were observed in the learners' natural setting in order to find out whether the learners gained autonomy after the PBL course.

We also wanted to answer the other questions we asked at the end of part one which are related to L2 development and learners' attitudes towards PBL. In order to preserve the exploratory aspect of this research, in addition to systematic observation we used questionnaires, field notes and focused interviews to identify any other possible impact of PBL on the learners.

Regarding data collection, we did not want to observe the students only at the beginning and the end of the course as in a pre- and post experiment research design. Taking into account the "four key DST constructs—the role of initial states, attractor states, variation, and non-linearity" in SLA development as in DeBot et al. (2007), we conducted a 'longitudinal study', where we observed the participants on each PBL tutorial session. Like SLA, autonomy is a complex factor which can also be impacted by different factors, such as language proficiency, motivation, learner's attitudes, etc. as it was discussed in Chapter 8. Therefore, its progress can also be marked by non-linearity. In Systemics we described different kinds of positive and negative feedback loops; we also talked about peaks and valleys to use Larson-Freeman' (1997) words in SLA learning as in DST. In this study, these factors may be related to the degree of the complexity of the problem-scenario, how much background the learner possesses about the topic to be investigated in terms of language and content, learner's level of proficiency in the English language (learner's initial state), interest of the learner in that topic, strategies developed over the period of intervention, etc.

The research design we adopted looks similar to that of longitudinal studies in experimental research. In order to avoid any ambiguity we will consider this type of design and show how ours is different. Our work is naturalistic and personalistic where we looked at each individual in her development and considered other factors that arose or were deemed to be significant. We used observation field notes to record any changes.

We have no intention to control any other variables or reduce the observation to a particular set of questions. We are not looking for a general pattern in the students' behaviors, but we want to find out about the possible changes that might occur for each individual participant. These findings are also supported with questionnaires, field notes and focused interview for exploratory and explanatory purposes.

Our research can have other benefits as presented in longitudinal studies. Kumar (2005) identified three types of research design based on the number of the subjects in the study: cross-sectional studies, before-and -after studies, or the pre-test/ post-test design, and longitudinal studies. Kumar (2005) stated that the main advantage of before and after design “is that it can measure change in a situation, phenomenon, issue, problem, or attitude. It is the most appropriate design for measuring the impact or effectiveness of a program” (p.95). This change is measured by comparing the differences between the two points of time before and after the intervention as illustrated in the figures below:

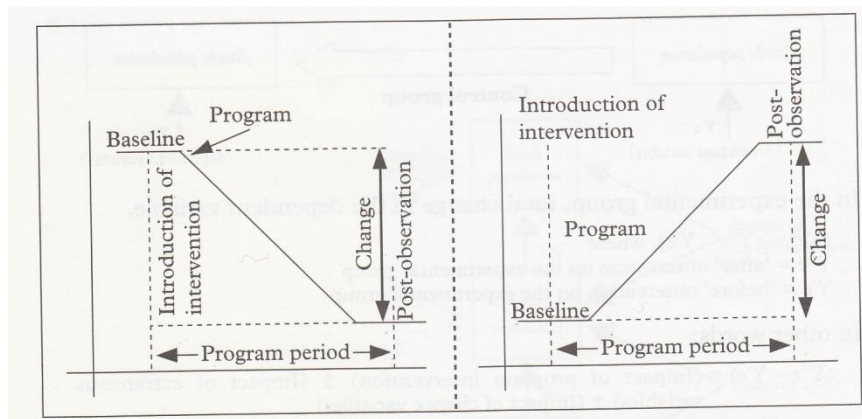


Figure 50; Measurement of change through a before-and-after design (Kumar, 2005, p. 103)

$$[\text{Change in dependent variable}] = [\text{status of the dependent variable at the 'after' observation}] - [\text{status of the dependent variable at the 'before' observation}]$$

Box 6; change in dependent variable (Kumar, 2005, p. 103)

However, this study is not without limitations. Kumar attributed the following disadvantages to a before-and after study; “It is possible that some who participated in the pre-test may move out of the area or withdraw from the experiment for other reasons”

(p.96). Another problem with this research is that “as it measures total change, you cannot ascertain whether extraneous variables are responsible for producing change in the dependent variable” (p.96). Other drawbacks stated by Kumar are the maturation effect, the reactive effect and the regression effect. The maturation effect is likely to occur when the lapse of time between the pre-test and the post-test is long and a young population may mature in between. The reactive effect might occur when the researcher uses the same research instrument in the two tests. Familiarity with the instrument might lead to subject awareness with the content and objective of the study. The regression effect is also often the result of the use of the same research instrument where the respondent decides to be less negative or to adjust a previously given view.

Kumar argued that the longitudinal study has the same advantages as the before-and-after design. He elaborated that this study design is desirable when “you need to collect factual information on a continuing basis” (p.98); as we can see in the figure below:

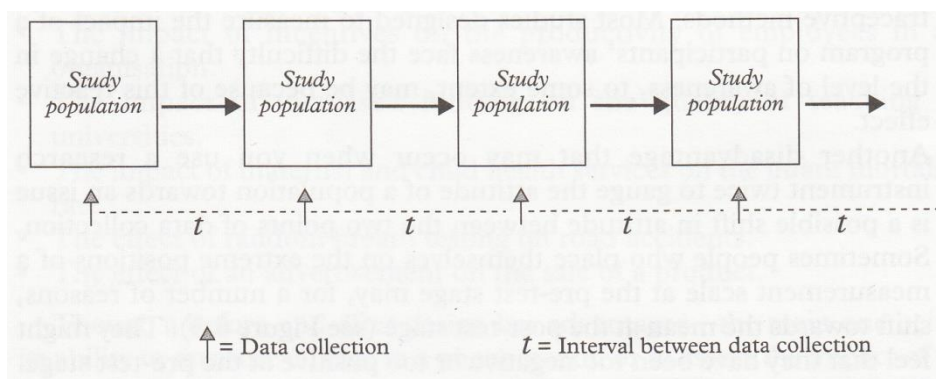


Figure 51; the longitudinal Study Design (Kumar, 2005, p. 98)

Kumar explained that the major advantage of this research design is that it “allows the researcher to measure the pattern of change and obtain factual information, requiring collection on a regular or continuing basis, thus enhancing its accuracy” (p.98). We explained in this part that DST is concerned with various changes over time and that the path is filled with bumps and holes; a before-and-after study might not be very accurate to show changes in the learner’s behavior.

Kumar (2005) also classified research studies on the bases of the way they are investigated into three types: experimental, non-experimental, and quasi- or semi-experimental. He explained that in studying cause and effect relationships like the impact of a method on the learners' comprehension can be studied in two ways: experimental or non-experimental. If the researcher introduces an intervention which is assumed to be the cause of change and studies its impact over a period of time, this is called experimental. In non-experimental research, the researcher will start by studying the impact to find the factors causing it, starting from the effect to find the cause. This argument also involves the notion of induction and deduction which was discussed in the previous section. This is illustrated by the figure below:

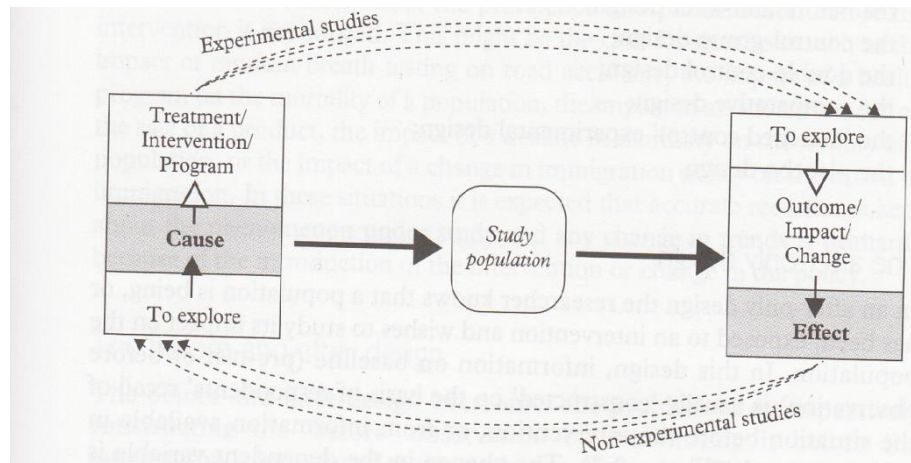


Figure 52; Experimental and non-experimental studies, (Kumar, 2005, p. 101)

It is important to note that our study involved both types of investigations. In stage 1, we examined the outcome to find the reasons behind the students' low level of proficiency. In the therapeutic stage we will examine the impact of the PBL methodology on learners.

Regarding the research sample, we wanted to have three groups of PBL to observe, so we allowed 20 students to enroll in the course. It is important to note that participation in this research for students was made on a voluntary basis. We can admit here that maybe only motivated students to study English must have been interested; This is not our choice, though, as this research would not have been allowed by the institution in a genuine class.

Regarding the number of students, we considered it to be okay for a qualitative study. Stotsky and Mall (2005) explained that qualitative research targets a small number of participants, but yields thick data which enable the researcher to understand thoroughly what is going on.

Studies featuring qualitative methods tend to focus on small numbers of participants and a thorough understanding of small, complete units of social interaction; hence, "thick" descriptions, or masses of details, are a salient characteristic of these studies. Researchers then analyze and interpret these details and often formulate categories for classifying their data. If their studies are not theory-based, they may propose tentative generalizations based on their data, and these tentative generalizations may be referred to as "grounded theory" because the theory has been derived from the data". (Stotsky and Mall, 2005, p.7)

13.3. Methods of Data collection and Triangulation

Cohen and Manion (2000) stated that "methods refer to techniques and procedures used in the process of data-gathering" (p. 39). They also argued that a multi-method approach involves the use of more than one method for data collection and it is thus a form of triangulation. They argued that "triangulation has special relevance where a complex phenomenon requires elucidation" (p. 239).

As we already pointed out in the needs analysis section, the benefit of this approach is to increase data validity and the researcher's confidence. This confidence, as Cohen and Manion put it, "can only be achieved as far as normative research is concerned when different methods of data collection yield substantially the same results" (p. 233). In contrast, the single-method approach, they added "may bias or distort the researcher's picture of the particular slice of reality she is investigating" (p233). To yield more reliable data for this research during the empirical phase, we used different research methods: observation, open-ended questionnaires and interviews.

To preserve the exploratory aspect of our research, we tried to use methods that can bring deep understanding of the learners. In addition to the autonomy factor, which requires the development of certain skills and strategies, we were looking for other factors such as language proficiency development and learners' attitudes towards PBL.

Mackey and Gass (2005) presented a range of methods of data collection which are commonly used in qualitative approach, such as ethnography, interviews, diaries/journals, case studies, and observational techniques “qualitative research can involve a range of data collection methods, including, for instance, structured and unstructured classroom observations, structured and unstructured informal interviews, case studies, introspective analyses, and diary studies” (p. (305). They commented on these methods saying that “each approach and method can be seen as contributing its own piece of the puzzle in qualitative researchers' attempts to obtain rich, detailed, participant-oriented pictures of the phenomena under study” (p.167). Denzin and Lincoln (2000: 3, in Snape and Spence, 2003) presented the research methods which are associated with qualitative research; described the data they can yield and how these data are treated.

Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that makes the world visible. These practices ... turn the world into a series of representations including field notes, interviews, conversations, photographs, recordings and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them (pp. 3-4).

In this work, we argued that action research is rooted in the classroom realities that are diverse and complex. SLA research in general fits into a holistic approach and it needs methods that account for the various elements of a system and consider their interactions as they occur in their proper scene. The goal of this work is to study the EAMP learner and the changes s/he might experience during and after working with PBL. Because different elements interact together during this learning process like motivation, autonomy and memory and their impact on language learning, it is useful to adopt a multi-research method to increase accuracy.

13.4. Summary

In this action research, we adopted the qualitative research paradigm for its compatibility with our epistemological stance, Systemics, DST and action research. We have gone through two stages: the ‘diagnostic’ and ‘therapeutic stages’. We started with a problem and a set of questions which we compiled from diagnosis. In the therapeutic stage, we wanted to implement PBL (as the independent variable and observe its impact

on our students' learning to find out possible changes in their behaviors related to autonomy as language learners, the dependent variable). Thus we are focusing on specific types of behavior (indicators for autonomy) that we want to observe during the PBL course. However, we are not testing a hypothesis and we are not interested in controlling variables as in a purely experimental paradigm. We asked questions for which we wanted to find answers in the learners' natural learning situation. We are aware that other factors might impact the whole process of learning. We also want to explore the whole situation to find out other interesting results that might emerge through the use of open-ended questionnaires, interviews and observation to open paths for new research questions and also to formulate new hypotheses.

Chapter 14: The research Protocol

14.1. Preparation for the Empirical Work

14.1.1. Structured Observation

McDonough and McDonough (1997) defined observation in research as a multi-purpose method of data collection which yields different types of interpretation. They debated that this research tool can be used as one among other methods “in a large scale research plan”:

Observation, as it stands, is a monolithic label, a broad and even amorphous umbrella term subsuming many and varied purposes and interpretations. Hopkins, 1993 for example gives a positive sense of this breadth of application by describing it as ‘a pivotal activity’ with a crucial role to play in classroom research, teacher’s personal-professional growth, and school development as a whole (p.101).

In the literature, observation is usually classified as systematic/ controlled/ structured or naturalistic/unstructured (Nunan, 1992; McDonough and McDonough, 1997; Cohen and Manion, 2000). Observation is said to be controlled or structured when the observer uses a grid/ scheme during the observation. On the other hand, it is described as naturalistic when it is used in a natural classroom context for exploratory purposes. In this way it “is to be taken in contrast to contrived, manipulated or experimental: it refers in other words to a concern with the understanding of natural settings and the representation of the meanings of the actors within that setting” (McDonough and McDonough, 1997; p.114).

McDonough and McDonough (1997) elaborated that systematizing observation through using schemes implies intentional observation and it requires “planning and the use of some previously established categories” (p. 105). Nunan (1992) also pointed out that an observation scheme should match the purpose of the research with the aim to help describe the situation as precisely as possible. McDonough and McDonough (1997) also explained that: “there is no need to rely on published literature for categories: a researcher can develop his or her own for some particular research purpose” (p.107).

For this reason and due to the particularity of our research, we developed our own observation grid. Our purpose was to focus on certain indicators of the autonomy

construct in learners' behaviors to see whether any changes have occurred. Nunan (1992) and Cohen and Manion (2000) explained that constructs are not observable, but can be measured through indicators. These indicators are called the proxy variables.

To use observation schedules McDonough and McDonough, (1997) recommended that "the observer has to learn how to recognize instances of particular categories of classroom behavior and note them down as they occur, either alive or from some kind of recording" (p.105). As far as this research is concerned, these instances of students' behaviors which we included in the scheme can be seen in steps of the PBL tutorials and roles attributed to students during each step. During performance of these roles the observer can record to what extent each student showed behaviors which could reflect a certain degree of autonomy. In relation to this argument, McDonough and McDonough reported what follows:

Instances of particular codings, frequencies and pattern are difficult to interpret only by reference to themselves. Lessons in particular, usually have a planned structure which at the least can be compared to the actual sequence of the lesson to observe and explain differences. Lessons and their participants also have a temporal and a structural place in a programme or curriculum which itself may be significant in explaining what is or is not observed (p. 109).

Our observation scheme was developed after the identification of three indicators of learner's language autonomy in the literature: Taking responsibility for one's learning, decision making/ critical reflection and independent action (see figure 42, Chapter 8) based on Benson Phil (2001/ 2006); Holec (1981); Little (1990/ 2001); McGarry (1995); and Dickinson (1992). This observation scheme consists of 14 learners' behaviors which we organized along the sequence of events in the PBL tutorial. These behaviors will be coded into the three aforementioned indicators of autonomy during the discussion of the results.

Observation schemes have their own merits and constrains. McDonough and McDonough (1997) stated some advantages of using observational schemes whether for quantitative or qualitative purposes.

- They are easier to use than on-the-spot description or paper recording.
- The use of agreed and even published category systems enables the comparison with other studies and therefore generalizability.
- They can be tailor-made for a particular problem.

- Analysis can be by simple frequency counting and numerical analysis.
- Patterns of interaction and development through time can be established.
- Personal pattern of a particular teacher or learner can be established.
- It is possible, indeed vital, to train observers in the coding system. A measure of reliability of the scheme is given by the relative ease different observers have in agreeing that actual behaviors are instances of one or other category (p.106).

Nunan (1992) also acknowledged the benefits of using a scheme for observation, but he also warned against potential problems.

While the use of observation schemes can provide a sharper focus for our data collection than unstructured observation, it can also serve to blind us to aspects of interaction and discourse which are not captured by the scheme, and which may be important to our understanding of the classrooms we are investigating (p.98).

In accordance with this claim McDonough and McDonough (1997) argued that the use of a coding scheme “whether in real time or on a recording or transcript, is a way of separating out significant events from the mass of data, spotting patterns, and arriving at an interpretation of the structure of what has been observed” (p.111). This is true especially for exploratory research. However, these limitations can be compensated for through the use of observation field notes, for instance, which can enrich this observation and complete the picture.

14.1.2. Observation Field Notes

McDonough and McDonough (1997) reported that different methods in the literature can be used to compensate for the limitations of observation schemes, such as ‘recording and field notes’. They pointed out that taking some field notes during the recording can provide a complimentary source of data: “Putting the two sources of data together represents a move away from the reductionist observation methods towards something one might usefully call elaborative description” (p.112).

In this work, in addition to the scheme, we took field notes. This method helped us to record students’ behaviors which can yield important data for this research, but were not stated in the scheme. We also took some notes which could further explain behaviors we wanted to observe in the scheme and enrich them. In this way, we managed to preserve the exploratory purpose of the research. We also tried to add these notes to the process of observation as a whole which the teacher-researcher also picked up and judged interesting. This is in agreement with Systemics which places the learner in

his/her context of learning and values other factors which interfere with his/her learning so that we come to a better understanding of the individual learner's behaviors.

In our study, the scheme has been catered for the particular research purposes and targeted specific students' behaviors. It facilitated the work of the observer and made it possible to observe each individual learner on task almost simultaneously. Using field notes allowed us to collect more useful data. The grid is time-saving and it allowed us to evaluate different students synchronously on one task which could have been much harder if the observer had to write every single thing as in natural observation. In other contexts where using a camera and recording the students is allowed, it would have been easy to watch the recordings several times and complete the observation scheme. In our context, however, we are not allowed to record anything, except sounds, in the female section. Eventually, we had to do everything synchronously, which put more pressure on us to collect as much data as possible during the PBL tutorials. Without the grid it would have been impossible to observe thirteen students at one time while they were on task.

14.1.3. The Open-Ended Questionnaire

Like other research methods, questionnaires have to be catered to serve the research objectives. Nunan (1992) identified three types of questionnaires: questionnaires which use only closed questions where the respondent has only to select one category to answer the question such as: agree/ neutral/ disagree. Questionnaires can be made up of only open-ended questions where the respondent is free to provide and formulate his/ her own answers; or a combination of both closed and open-ended questions. Nunan pointed out that while it is easier to analyze questionnaires with closed forms, "one often obtains more useful information from open questions. It is also likely that responses to open questions will more accurately reflect what the respondent wants to say" (p. 143). These types of questionnaires are also more common in qualitative paradigms as they yield more detailed and profound data.

Nunan also warned against some pitfalls that the researcher has to be aware of while formulating the questions of the research such as being careful with the wording

and not showing his/her own attitude in order not to elicit responses which become “artifacts of the elicitation devices themselves” (p.143).

Nunan also pointed out that “free-form responses from open questions, although they may result in more useful, insightful data, are much more difficult to quantify” (p. 145). However, he added it is not impossible to quantify them through “key word analysis, generating categories from the statements made by respondents” (p.146). He illustrated with one study that he conducted on ‘teachers’ beliefs about the nature of language and learning’ and how he turned teachers’ responses into a manageable and quantifiable data.

Our first questionnaire (appendix number 17), which we used at the end of session one PBL tutorial 1, is made up of 6 questions. Our second questionnaire (appendix number 18) is made up of 14 questions and it was administered at the end of session 2 (before the amendment of the PBL structure). The questions in the two questionnaires are almost a reformulation of the same instances of observation in the PBL tutorial. Our intention is to back up our results with open-ended questions where the learners get the opportunity to elaborate on their behaviors. This procedure would allow the researcher to double check whether the observation yielded similar results as the questionnaires. The sequences in the questionnaires will also be grouped under the three discussed features of autonomy. These questionnaires depict the situation in PBL 1 tutorial sessions and show students’ behaviors during their first experience with the PBL approach. At the end of the course we also had a focused interview which in addition to other questions it targeted these indicators of autonomy and showed the learners’ experience after they finished the course. Below is a presentation of this interview.

14.1.4. The Focused Interview

Interviews have some characteristics which make them very useful research techniques for data collection, despite some disadvantages such as factors related to the interviewer bias. Bias is defined by Lansing et al. (1961) cited in Cohen and Manion (2000) as “a systematic or persistent tendency to make errors in the same direction, that is to overstate or understate the “true value” of an attribute” (p. 281). These factors are not

unavoidable though. Cohen and Manion explained that “One way of validating interview measures is to compare the interview measure with another measure that has already been shown to be valid” (p.281). Ritchie (2003) portrayed the advantages an ‘individual interview’ can bring to research. She explained that personal interviews bring deep knowledge about the interviewee from his/her own perspective which makes interviews very convenient in the study of complex phenomena.

They take different forms but a key feature is their ability to provide an undiluted focus on the individual. They provide an opportunity for detailed investigation of people’s personal perspectives, for in-depth understanding of the personal context within which the research phenomena are located, and for very detailed subject coverage. They are also particularly well suited to research that requires an understanding of deeply rooted or delicate phenomena or responses to complex systems, processes or experiences because of the depth of focus and the opportunity they offer for clarification and detailed understanding (pp. 36-37).

Kumar (2005) also argued that interviews are suitable for complex situations and for the collection of ‘*in-depth information*’. He also explained that the interview allows the interviewee to ask for further explanation of a question and the interviewer to supplement more explanation. Tuckman (1972, in Cohen and Manion, 2000) stated that the interview can be used to serve different research purposes; it can be used to gather data about the interviewee’s opinions, preferences and attitudes.

First it may be used as the principal means of gathering information having direct bearing on the research objectives. As Tuckman describes it, ‘By providing access to what is inside a person’s head’ it makes it possible to measure what a person knows (knowledge or information), what a person likes or dislikes (values and preferences), and what a person thinks (attitudes and beliefs)’ (Tuckman, 1972 in Cohen and Manion, 2000; p. 272).

They also debated that interviews can be used in hypotheses testing or to come up with new ones; “Second, it may be used to test hypotheses or to suggest new ones; or as an explanatory device to help identify variables and relationships” (pp. 272-273). They added that interviews can be used in triangulation of data with other methods and particularly as a follow up of new findings in the research; “In this connection. Kellinger [1969] suggests that it might be used to follow up unexpected results, for example, or to validate other methods, or to go deeper into the motivations of respondents and their reasons for responding as they do” (p. 273).

An interview which is used as a follow up of a research project is known as the ‘focused interview’ as Cohen and Manion (2000) called it. This type of interview is particularly used to further investigate a research situation as they explained, “ The distinctive feature of this type is that it focuses on a respondent’s subjective responses to a known situation in which she has been involved and which has been analysed by the interviewer prior to the interview” (p. 273). Merton and Kendall (1946, in Cohen and Manion, 2000) explained how the focused interview is distinct from other types of interviews in the way that interviewees should have been involved in a course or a program prior to the interview on which they can give feedback and tell their personal experience. The researcher should also have selected areas of interest s/he wants to further investigate after this course or program.

1. *The persons interviewed are known to have been involved in a particular situation: they may, for example, have watched a TV programme; or seen a film; or read a book or article; or have been involved in a social situation.*
2. *By means of the techniques of content analysis, elements in the situation which the researcher deems significant have been previously analysed by her. She has thus arrived at a set of hypotheses relating to the meaning and effects of the specified elements.*
3. *Using her analysis as a basis, the investigator constructs an interview guide. This identifies the major areas of enquiry and the hypotheses which determine the relevant data to be obtained in the interview.*
4. *The actual interview is focused on the subjective experiences of the people who have been exposed to the situation. Their responses enable the researcher both to test the validity of her hypotheses, and to ascertain unanticipated responses to the situation, thus giving rise to further hypotheses (p. 289).*

These are the reasons why the focused interview is usually used as a follow-up. In this research, we also used the focused interview after the students were involved in a new learning experience. Our objective was to confirm the information we collected during the observation and from questionnaires. In addition, we wanted to check some behaviors which we noticed during the project, but were not included in the observation grid. We also wanted to find out about students’ opinions and feelings about this new learning experience.

14.1.5. Designing Teaching Materials

For the purpose of this research, course material was developed. One can be reminded at this stage that finding relevant materials for an EAP/ESP course is a problem (Swales. 2011). In his article *'When there is no perfect text: Approaches to the EAP practitioner's dilemma'*, Swales encouraged this step of catering one's own course material in the circumstances where search for existing one is pointless; "I have advocated occasional invocation of the EAP practitioners' creative powers to fill gaps in materials production and curricular design when no amount of searching and sleuthing is likely to produce 'the perfect text'" (Swales, 2011, p.12).

14.1.5.1. Adopting the Foundational Approach to PBL

Long (2005) debated that "Just as no medical intervention would be prescribed before a thorough diagnosis of what ails the patient, so no language teaching program should be designed without a thorough needs analysis" (p.1). Following this recommendation, we designed our course material after we conducted a needs analysis (see Chapter 6). This analysis showed that the learners are passive and teacher dependent. It also turned out that their learning problems stem basically from the way they have been modeled to learn. As a remedy we considered the implementation of PBL to enable learners to develop learning skills and strategies that can make them gain autonomy and independence.

PBL has been implemented differently from one place and situation to another all over the world as we reported in Chapter 11. The selection of a convenient PBL approach is also a major stage in course design. The study of our research context led us to select the foundational approach of PBL. In this type of PBL, the problem-scenario comes at the end of a unit or a module after the learners have lessons in the studied topic. On the one hand, this step should help learners develop some knowledge in the topic around which the PBL scenario is built. On the other hand, the common content delivered to the students via the lessons or lectures can serve for assessment purposes.

Developing knowledge about the learners' field of study, content, is one of the issues we discussed in an ESP course delivered through PBL. Therefore this has been

carefully selected. The topics of the lessons or problem scenarios we included were based on two conditions: the type of English needed for the medical school as identified in the NA and authenticity of the problem. Authenticity is a seminal requirement in ESP as we reported in Chapter 10; it is also a key principle in PBL as discussed in Chapter 11. Eventually we used the learners' real world problems which were relevant to their local context to design our problem scenarios.

In the section about 'reading' in ESP, we argued that students' knowledge of a topic interferes with comprehension. For the lesson which precedes the PBL scenario, the students studied reading passages which led to the discussion of vocabulary meaning and grammar in the passages. The purpose of this step was to help learners acquire some knowledge about the topic of the PBL scenario and to familiarize them with some of the vocabulary that might be encountered in that context of the problem. However, the problem scenario will also require further language learning from them. Eventually this step would help prepare the students to better cope with the problem-scenario and move ahead to do some independent individual work.

14.1.5.2. Problem-Scenario Design

Once we had decided to write our own materials, another problem arose. Sources and directions about problem design in PBL in the literature are very scarce, let alone in language teaching. Problem design is crucial and all learning occurs in relation to how well it was designed as Hung (2006) explained; "Problems, in general, are at the heart of PBL. They function as a content and knowledge organizer, learning environment contextualizer, thinking/reasoning stimulator, and learning motivator" (p. 26).

Hung (2006) developed a two-component model to design PBL problem scenarios. He explained that this model can be useful for different learners and at different stages of learning. His model encompasses two types of components: three Cs: content, context and connection and three Rs: researching, reflecting and reasoning as the figure below shows.

The 3C3R model consists of two classes of components: core components and processing components (see Figure 1). Core components include content, context, and connection, and are used to support content/concept learning; processing

components, composed of researching, reasoning, and reflecting, concern the learners' cognitive processes of learning and problem-solving skills. (p. 26).

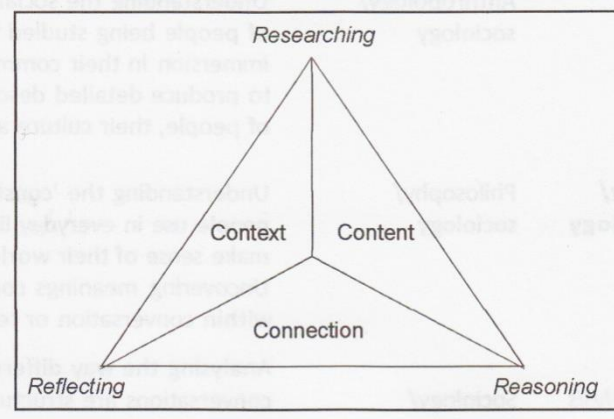


Figure 54; Core Components of the 3C3R Model (Hung, 2006; p. 27)

The three Rs: researching, reflecting and reasoning are core components for this research and are closely connected to autonomy as discussed earlier in Chapter 8. In chapter 10 and 11, we also argued that PBL can bring both context and content to an ESP course. Hung similarly highlighted their importance in PBL learning. Based on Battig (1979); Jacobson & Spiro (1994); and Spiro et al., (1988), Hung elaborated that connection means how well a student can retrieve pre-existing knowledge to solve newly encountered problems; “To solve ill-structured problems effectively, the problem solvers not only have to possess a rich repertoire of necessary knowledge, they also must interlink these diverse sources and knowledge into an effective knowledge base network and be able to cross-reference related concepts” (p. 61). This argument coincides with the cognitive model of learning we discussed in chapter 11 as well as memory strategies reported in Chapter 8. To a certain extent we agree with Hung (2006) as connection is a seminal step in solving a problem scenario. However we disagree with his classification of connection with the other two Cs: content and context. Connection has the same beginning which rhymes with the beginning of the two other words, but it should be associated to a different concept. We would rather add it as one strategy to the three Rs.

Connection is one of many other actions PBL requires, such as selection of material, planning and decision making which all require cognitive strategies. In addition to cognitive strategies, PBL would also enable learners to develop social and affective strategies. This is why we would rather use the label learning strategies than connection

and the three Rs. The three Rs are also cognitive strategies which should be included in learning strategies.

We also find the model incomplete when applied to English language learning, particularly in ESP. Following Hung's model, we designed a framework for ESP learning through PBL in the way we see it as it was discussed in Part I. The figure below summarizes our view.

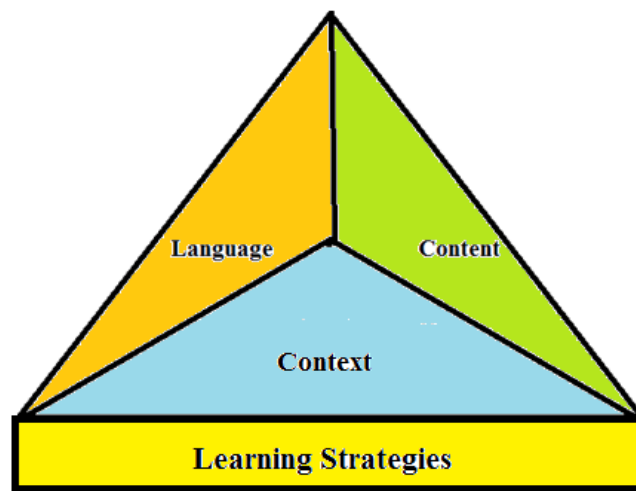


Figure 55; Problem Scenario components in PBCLL

Figure 54 resembles Hung's figure in terms of design as it is structured in a pyramid shape. However, we have a different classification of the different components: content, language, context and learning strategies. These components also encompass broader meanings. In our work, we already stated that content is taken from the learners' domain and it encompasses context for a learning topic. Context is a key issue in language learning, ESP and PBL and we retain it as a major factor. Language remains a key component in ESP and it carries content. It is also used among learners to disseminate messages and to build new knowledge. Along these two key learning components, the learner should develop learning strategies. In his 3 Rs, Hung (2006) mentioned researching, reasoning and reflecting. Our comment is that researching is one

step among many other steps in PBL, such as planning, selecting material, negotiating meaning, evaluating and decision making which all involve reflecting and reasoning. For this reason we replace his three Rs with learning strategies which can be cognitive, affective or social, and which we consider the path to enabling students to comprehend context, learn language and content. This might explain the choice of the location of the learning strategies in the pyramid at its base.

In a word, several issues have been taken into consideration in the problem scenarios design associated with this work. We tried to keep in mind the type of English language needed by Phase I in the medical school (the target situation) as identified in the needs analysis; the authenticity of the topic and content; as well as the learning strategies that students have to develop over the course (Present situation needs). The development of these strategies is one step to enhance learners' autonomy and sort out the learning problems encountered in the research institution.

In addition to language, we also discussed the importance of content in Chapters 10 and 11 and in figure 55 above. The topics in this material were based on two aspects. On the one hand, they were catered to meet the learners' needs for the target situation as identified in the needs analysis: medical specialties, first aid, diseases, medication, etc... Therefore topics were basically chosen on the basis of learners' carrier content. On the other hand, they were inspired from the learners' social/ real-life context in order to meet the authenticity criterion.

For this research, we designed a seven-unit- textbook which could be used over a quarter in the PYHC where each unit has one or more problem scenarios. Here we will present the problem scenarios we used in this research and which are related to the following topics: medical specialties, disease (obesity); first aid (animal-bites- food poisoning); controversies in medicine (Should or should we not vaccinate our children).

Medical specialties are taught in the first phase in the medical school. It is also of major importance for our students as they choose a medical school at the end of the PYHC. Some students join the dentistry college, others the medical school or go to pharmacology, etc. This is why we wanted them to learn how they can do that through PBL. So the first unit was about medical specialties ending with this problem scenario.

As a medical student, by the end of this year, you need to choose a medical school. **Decide** what field of medicine you want to specialize in and which specialty you would like to follow.

For the topic of ‘diseases’, we selected ‘obesity’, a health condition which might have affected every Saudi family. To back up our argument, we can cite Memish et al. (2014) who reported that 28.7% of Saudi population is obese.

Overall, 28.7%, or 3.6 million, Saudis aged 15 years or older were obese. This prevalence ranged from 24.1% among men to 33.5% among women (Table 1). Both men and women consumed low amounts of fruits and vegetables (more than 81.0% of men and women consumed fewer than 3 servings of fruits and vegetables per day) and most were physically inactive (46.0% of men, and 75.1% of women practiced low to no physical activity at all) (p.2).

For this topic we designed the following problem scenario.

Is obesity a disease?

To answer this question the students may agree or disagree which raises the opportunity to negotiate meaning. To back up their arguments, they have to find information they know and information they do not know, but need to know. Thus gaps of knowledge are identified. A plan follows where students divide the work among themselves. And then, the other PBL steps would follow.

Diabetes is another serious health condition in KSA which is not less crucial than obesity; Alqurashi, Aljabri, and Bokhari (2011) reported in a study which they conducted in KSA that out of 6024 subjects, diabetes mellitus was found in 1792 patients; “The prevalence of diabetes was 34.1% in males and 27.6% in females” (p.19). This problem inspired us to set the following problem scenario.

Al-Qurashi et al. (2011) reported, “The prevalence of diabetes is high among the Saudi population and represents a major clinical and public health problem” (p.19). As a medical student, what would you do?

Problem scenario number four is about first aid. In the student’s region, the first leisure activity is most probably camping in the desert. In a desert environment reptiles

are very common and reptile bites are a serious issue. As Al-Sadoon (2015) reported, the number of cases of snake bites which occurred in the city of Riyadh, KSA alone between 2005 and 2010 reached 1019 cases.

The present investigation is a retrospective review of snake bites in Riyadh province over the period (2005–2010). A total of 1019 cases of bites admitted to the Ministry of Health medical centers in Riyadh province were analyzed on the basis of age, sex, time of bite and its site on the body, outcome of treatment, antiserum dose and type of snake. Bites occurred throughout the six years with the highest frequency in 2005 and least in 2006 where most of the bite cases were mild and all evolved to cure except four patients who died following the administration of antivenom during 24 h after snake bite (p.198).

The students would be interested in knowing at least how to give first aid. This type of problem gives them meaning in learning, it is not only oriented to their field which is medicine, but also to their own lives. This criterion is very important as it increases students' intrinsic motivation. This problem scenario seems to satisfy all the required criteria of problem-based learning approach. Moreover it allows the practice of a variety of linguistic skills.

You went camping in your region. A snake bit your five-year-old brother. **What would you do?**

The same goes for the following problem scenario that we also devised for the topic of first aid: food poisoning. In our students' context, ordering food from restaurants is almost a daily habit. Food poisoning is a situation that they might face at home and we can describe it as authentic and meaningful for the learners. Al-Mazrou (2004) depicted this situation in KSA.

Over the years, a seasonal variation has also been observed in the occurrence of food poisoning outbreaks, with the peak of these accidents occurring during the hot summer months of June to August. This period coincides with the summer school holidays; a period during which families spend a substantial amount of time out of their homes and take their food mainly from restaurants, canteens or other fast food outlets. The increasing demand may lead to food preparation under poor hygienic conditions in the small food outlets in the extremely hot weather, thus increasing the risk of food contamination (p.12).

In the figure below, we can see some statistics that he reported to show the number of cases affected in KSA, between 1404 and 1422 Hijra, which correspond to 1988 and 2001, in the Gregorian calendar.

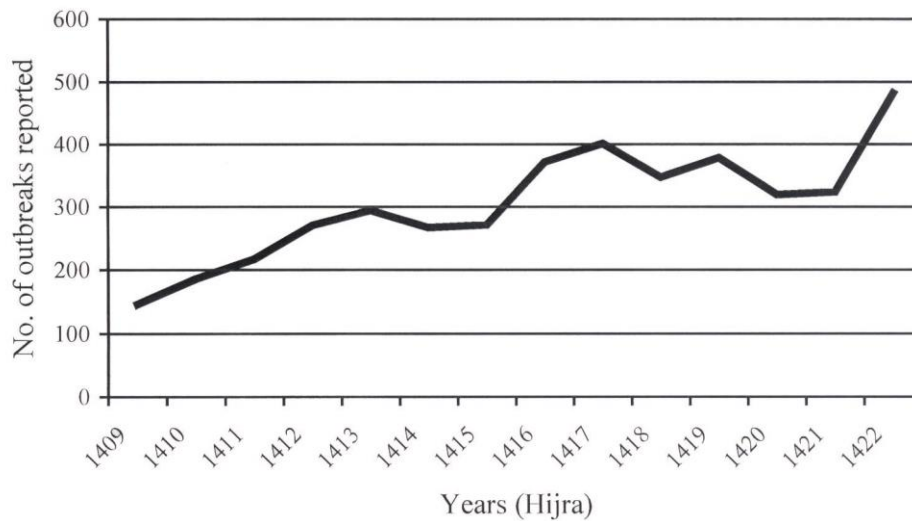


Figure 56; Number of outbreaks reported (Al-Mazrou, 2004; p.12)

In a more recent report, Swerdloff (2015) said, “According to reports by the local media, some 2,745 restaurants in Jeddah, Saudi Arabia’s largest seaport on the Red Sea and the second-largest city in the Kingdom, have been forced to close over the last four months due to health violations” (par. 2). Below is a sample of a problem scenario which we designed in relation to this situation.

You are on a vacation with your family. After dinner, your two brothers who ate the same thing started vomiting, and having diarrhea and fever. **What would you do?**

In terms of design, the problem is ‘ill-constructed’; the students are not told straightaway that diarrhea and fever are symptoms of food poisoning. They have to find out themselves ‘why’ this happened. They have to guess and generate hypotheses, which they need to check. Thus gaps of knowledge would be identified and a plan to fill these gaps would automatically follow. This would help them gain knowledge about food poisoning, and then answer the question ‘what would you do?’, by looking at first aid

procedures to help someone with this condition. To cope with this problem, the students satisfy all the criteria of the problem-based learning approach. They have to reflect, plan, search for information and find out why this happened. They also practice a variety of language skills, come across discourse features of their field, ‘real content’ (giving instructions in medicine), and would normally develop knowledge of terminology. Notice that while this topic carries field content, it is not too technical and it can be facilitated by an ESP practitioner (to keep the concern of ESP practitioners discussed in Chapter 10 in mind). Our students also have limited knowledge in their field as explained in Chapter 4 as it is the case of any pre-study learner (Robinson, 1991). This problem scenario would allow them to learn language, content as well as develop thinking skills and learning strategies just the way we wanted it to be in a PBCLL course.

The problem scenarios designed for this course were an attempt to provide the EMAP students with the opportunity to develop language and to build different types of knowledge. The problems designed are rooted in the student’s context of life in the real world which meets the criterion of authenticity and should increase their motivation to learn. At this point, we would like to emphasize the linguistic teaching objectives or outcomes which are particularly associated with language learning and which should distinguish this approach while being implemented in language teaching. At the end of problem solving the students should report their solutions in a written or oral piece of work as planned in the PBL tutorials. Students thereafter should get feedback from their tutor as well as their peers. Students should be given the opportunity to share their final work with other groups and with the facilitator in order to get feedback in terms of general performance and achievement. It is essential to bear in mind that there are no wrong and right answers in PBL.

In addition to language and content, we wanted the learners to develop thinking skills; know more about themselves and their community problems; to learn actively; learn for a purpose; learn how to share knowledge; learn from others and help others to learn.

14.1.6. The Institutional Consent

It is useful to remind the reader of the dynamic features of our context to show how this impacted and constrained our work. The research started in 2010, two years after our arrival to KSA, therefore the problems of context were not really clear for us. We first approached the female English Language Center (ELC) director for a research consent (a British expatriate) who welcomed the idea and approved it. We started the investigation, but we did not really ask for a written consent. We thought we would request it when we approached the empirical phase. However as we came to the empirical part, problems started to arise. The ELC director was herself dismissed from her job; the female Vice-Dean took over a new position and left the place; and the medical school first year was taken over by the deanship of the Preparatory Year. We requested a written consent, but it was turned down for no clear reasons. Amazingly the person who did not allow the research intervention to take place is one of our references in Chapter 4 who described the status of English in the country in a state of flux and tried to present alternatives to sort out the problem. Eventually, we had to wait for another year to approach the female vice-dean again (the dean's wife), she granted us the permission to conduct the empirical part without taking the consent from the male side (appendix number 12). This taught us a lesson not to embark on any type of field research without prior written approval.

14.1.7. Forming the Class of participants and informing them about the procedures

For this research we wanted to have three PBL groups of seven students. First, we made an announcement for students who finished Level 4, the last level in English, at the PYHC and were doing other courses on campus. The reason is that these students had free time as their schedules were alleviated by 4 hours a day, which were previously scheduled for the English language. Another reason is that these students would not be taking any other English classes in their programs except for this project, so no other language learning would be taking place during this course. This would allow us to better

see the impact of this course or new methodology on them. In addition, these students would be joining the medical schools after this course.

20 students aged 19 to 20 registered for this class. This was quite a big sample for an exploratory study, but we anticipated that some would drop out so we took them all on. All students who joined the course did so voluntarily and were free every day at least from 10:00 to 11:00 am. The students who registered were told that they would study English in a different way and most of them registered because they wanted to improve their English before they joined the medical school. Their level of English ranged between elementary and pre-intermediate according to our courses and assessment methods discussed in the needs analysis. The students who registered passed level 4 with letter grades between C and A+, which means average to excellent, resulting in a mixed-ability sample. On the positive side, this factor can make the sample approximate a normal genuine class condition. On the negative side, some of these students were my students in Level 3 and 4, and this might have created a bias which impacted our research findings and will be discussed in the results.

As the participants were having classes in other subjects in different sections, we scheduled a meeting to see when they were free. During this meeting, we set up a timetable for the lessons which we scheduled over a whole quarter, from 31st March to 21st May, 2014. We also asked the students' registration office to provide us with a vacant classroom for those times.

14.2. The PBL Course

The PBL course took place between 31st March and 21st May, 2014, comprising 30 sessions. Each session ranged between 1 and 1 and a quarter of an hour.

14.2.1. The Lessons Preceding PBL Tutorials

During the sessions which preceded the PBL tutorial sessions, which were conducted in English, included reading comprehension, where students were sensitized about some reading strategies discussed in Chapter 10; They were taught how to use a title to focus the search and how to skim for general information. They were also taught how to scan a text quickly and find detail, by focusing on the words that can highlight the

needed information. They were also encouraged to guess the meaning of new words from the context. These strategies will be further practiced during the PBL tutorial where the learners will have to use them in different steps to look for the right information and select what they need to use.

14.2.2. The PBL Tutorials

Regarding the PBL tutorials, many elements were amended throughout the course, such as the number of PBL tutorial sessions. At the beginning we planned to have only two sessions of PBL tutorials, just as suggested in the literature, but this did not seem to work in our context as it will be explained below, and we had to extend them to three sessions.

The class started with 20 students, but after the 2nd 'PBL tutorial session' seven students withdrew from the course. Learners in our context are not used to doing homework. The students came to the second and third session with no work done and realized they still had to do it. They could not efficiently participate in the presentations and several issues arose. This is an indicator of passive learning and lack of motivation if we associate this behavior with the discussion we had about motivation, autonomy and self-directed learning in Chapter 8. Following this session, many students dropped out of the course as the attendance record illustrated in figure 57 demonstrates. This figure shows the number of students who attended the course in each session, either for the lectures or the PBL tutorials. As we can see in the figure, the number of lectures equals the number of PBL tutorial sessions. We had five PBLs and every PBL is made up of three sessions, where sessions 1 and 3 students worked in groups and session 2 students worked individually.

The mass withdrawal, seen in figure 57 below, led to the evaluation of PBL tutorial structure and its amendment. This also impacted the number of groups and group formation. In PBL, the group should include six to seven students. However, after this students' withdrawal, the number of the learners in each group dropped. Eventually, we reformed the groups and ended having only two groups of students of six and seven. The students in the groups were of mixed abilities and this further created some clashes

between the group members, another issue which will be discussed in the next part of this work.

Then a reschedule of the PBL tutorial sessions took place. After this change, we had three sessions instead of two and a great portion of the work which was supposed to take place outside the classroom, was scheduled inside the classroom. Eventually we asked the students' registrar to give us permission to use one of the computer labs on campus during 5 PBL tutorial sessions. We also had to amend the observation scheme to make the statements fit to the number of sessions. On the positive side; the students benefited from another PBL tutorial session where they were almost mentored at each computer. This allowed us to record the students' behavior as it was occurring instead of judging the product that they would have brought to class. This resulted in more accurate and reliable results and showed how the individual learners were of mixed abilities and that they needed different levels of help.

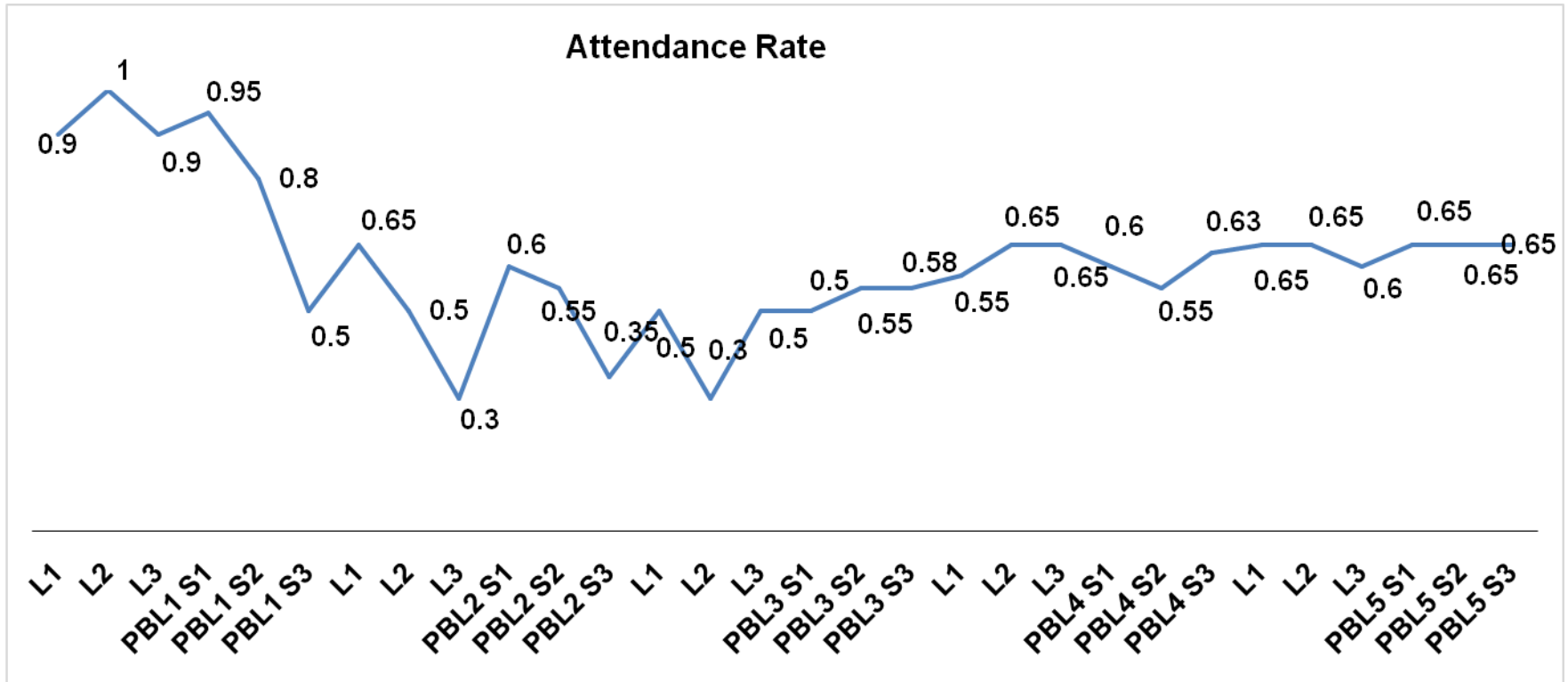


Figure 57; Students' attendance rate during the course

We were convinced that it would be better to schedule a third session for the PBL tutorials for each problem scenario. So the students started getting three sessions as indicated below. We also asked for a computer laboratory to do the work with the students. Session 2 was postponed and it was conducted in a computer lab. This step was a solution for some context issues, but it benefited the research as it will be discussed in the results.

The following box shows PBL tutorial structures after amendment (See box 4; in Chapter 11; the PBL tutorial structures before the amendment).

- Session 1:

- Students are introduced to a problem scenario.
- Students discuss the problem scenario.
- Students' schemata are activated and gaps of knowledge are identified
- Students prepare their plan of work.
- Students divide the work among themselves in order to bring the needed information- **end of session 1**

Session 2 (in a laboratory):

- Students search for the information needed for their share on the Internet assisted by the teacher and select the right resources.
- Students summarize their work.
- Students put their work together: knowledge about a topic is shared between students/ meaning is negotiated/ decisions about something are made/ work is assembled and finalized.

Session 3:

- Students present their work to the class.
- Students get feedback from other groups and from the tutor and are given the opportunity to assess their own work.

Box 7; Amended PBL tutorial structure

We notice that the number of steps has not changed. However, steps 6 and 7 have been moved to be realized in the laboratory instead of being done as homework. Step 8 was also moved to session number 2, so that session 3 will be saved for presentation and feedback only. Work outside the classroom is one of the indicators of autonomy. However, for scaffolding purposes we might accept that as a new experience, the learners are not yet used to working on their own and that they might need assistance. This change also allowed us to observe them on task and how they evolved in their search and to what extent they could rely on themselves to find the information needed over the 5 PBL tutorial sessions.

Following these changes, the observation grid was also amended to cover the three sessions for each PBL scenario instead of two. The observation schemes also were modified so that they became adapted to the number of sessions and the observed behaviors of learners. The wording of some statements was also changed to focus on behaviors we could now observe. This was also done very quickly to cope with these emerging problems instantly and not lose the time allocated for this research work.

This is a natural step in action research as well as in the qualitative paradigm as previously discussed. In DST and Systemics reality is dynamic and changes are a natural part of any process.

14.3. Data Collection

In the first PBL tutorial, at the beginning of the session, the tutor explained to the learners that they had to team up in groups; one student would be the minute taker; one student would be the spokesperson and the others would participate as regular members.

Observation was made during PBLs number 1, 2 and 3 of each PBL tutorial using the observation grid. Observation during sessions one and three was made at the group level, while the second session was made for each individual student.

McDonough and McDonough (1997) debated that “any form of observation is going to introduce some distortion from normality” (p. 110) due to the presence of a

camera or an observer sitting at the back of the classroom or any form of intervention in the natural context. To minimize this problem in our case, we sought assistance from a colleague who conducted the observation during all the PBL tutorials. This colleague has taught the students involved in the project and they are familiar with her. As it is forbidden to use a camera, the observer had only the grids and her notes. She accompanied us while we were working with the groups and facilitating the problem scenarios and looked like an assistant rather than an observer keeping the atmosphere as natural as possible.

In DST the belief goes on that changes if they happen to a system are non-linear and that we do not know 'which pebble starts the avalanche'. Adapting this belief, we could not follow the pre- and post method of design. We conducted several observations for each student who was assessed either in group or individually over the whole period of the course for each tutorial session. All the behaviors were recorded so that we can observe this change if any over time.

While we focused on indicators of autonomy using the grid of observation, we also made sure the exploratory aspect of our research is well retained through natural observation, focused interviews and questionnaires. Notes were taken, the same observer was using the grid and jotting down some instances which caught her attention and at the end of each observation we sat together so that we could enrich these notes with things which we also picked up and judged interesting:

The students were also asked to complete questionnaires at the beginning of the intervention after the first PBL tutorial session to record their reactions, problems they faced and challenges after their first exposure to the method. They were also asked to fill in a questionnaire in the second session of the first PBL tutorial. These results should back up our observation during PBL 1 as a point of departure in their new experience. At the end of the intervention, we prepared a focused interview schedule. The interview encompassed questions relating to indicators of autonomy which the students would judge from their own perspectives; evaluation of one's development in language skills; an evaluation of their new experience in this course; and their attitude towards PBL.

Both questionnaires and interviews were explained to the students in their native language. Students were allowed to take notes in Arabic to better understand the questions. They were also given the option to answer in English or Arabic. Some students answered only in English; a mixture of English and Arabic or only Arabic. However, most of the time the answers in Arabic, their language, were much better worded and more profound than the ones in English.

Part III: Data Analysis and Results

In this part, the results from the data collected through the open-ended questionnaires, observation scheme, observation field notes, and focused interviews are displayed using charts and figures. The results pertaining to the various data collection methods are discussed, below.

Chapter 15: The Open-Ended Questionnaires

Two open-ended questionnaires were given to the students in PBL tutorial 1 sessions 1 and 3 (originally planned as session 2). The results from the participants should reflect the initial states and behaviors of the students during their first experience with the PBL approach. These results should correspond with the observations from the first PBL tutorial to confirm the learners' initial states and behaviors. They should also be compared to the results from the focused interview to assist with identifying any student behavior developments between PBL tutorial 1 and the end of the course (i.e., after PBL 5).

It should be noted that only the students who remained involved in the course returned the questionnaires. Those who dropped out did not bring back their questionnaires and did not return for subsequent sessions, which is depicted in the research protocol attendance chart. In one way, this should have a positive impact on the research results, as the results that were collected involved the same respondents and participants over the whole duration of the course.

However, if responses from those who dropped out were obtained, the reasons for their failure to continue might have been identified. According to the classmates of those

who dropped out, they had left because they found the course too demanding. However, this information could only have been verified if their own responses were collected.

The two questionnaires included 20 questions. The first questionnaire included eight questions, and it collected information about the first session of PBL tutorial 1. The second questionnaire included 14 questions. These questions aimed at gathering information about work outside the classroom, which was subsequent to session 1 and work during session 2, before any amendments were made to the PBL tutorial structure. Though session 2 was postponed and took place in the laboratory, the questions were retained as they were originally developed and they were assigned before the students engaged in the laboratory work.

The 20 questions in the two questionnaires examined specific behaviors that related to the three indicators of autonomy, mirroring that of the observation grid. Specifically, the indicators are 'independent action', 'taking responsibility' and 'decision making'.

15.1. Questionnaire 1 Session 1

This questionnaire asked questions related to the three indicators of autonomy. These questions were coded into these three categories and analyzed accordingly.

15.1.1. Independent Action Indicator

Question 1: *Were you able to comprehend the problem scenario without much help from the tutor? Why or why not?*

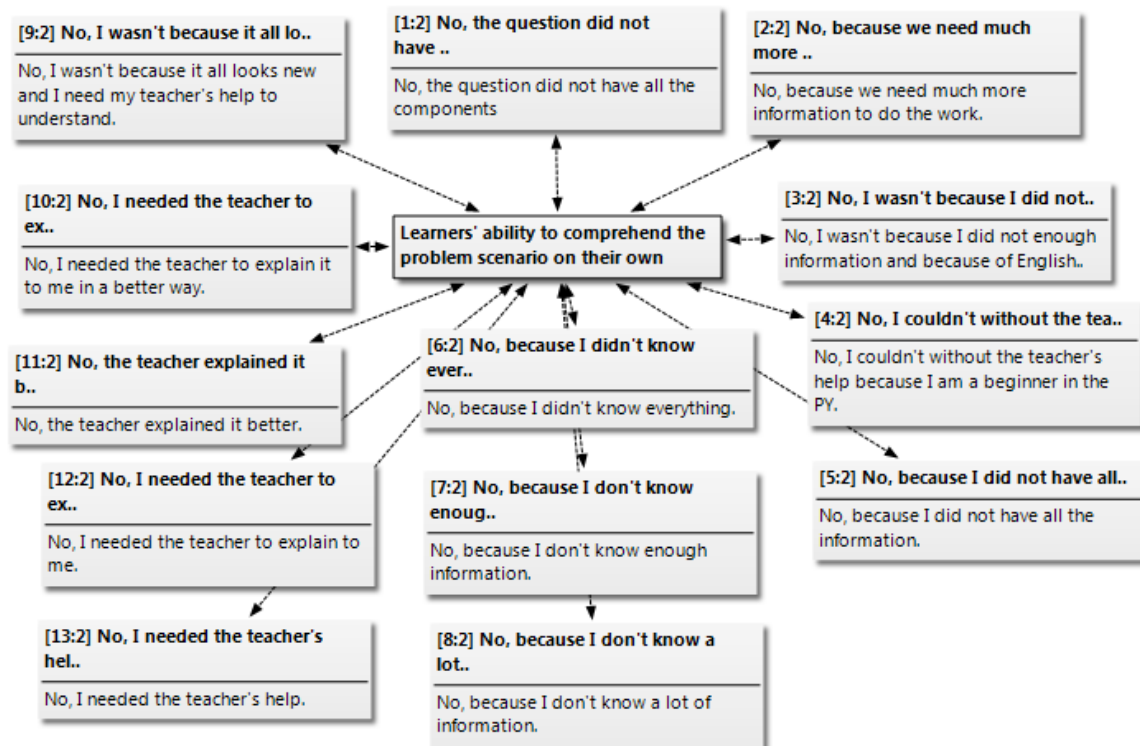


Figure 58; Learners' ability to comprehend the problem scenario on their own

In this question, feedback was obtained from the students about their comprehension of the first problem scenario they were given. This problem was the following:

As a medical student, by the end of this year, you need to choose a medical school. Decide what field of medicine you want to specialize in and which specialty you would like to follow.

The students in the educational context of this study were used to working with Multiple Choice Questions (MCQs) in scientific subjects. In English writing for instance, they are used to writing a composition which they usually rehearse with the teacher in class. When reading, they answer 'tell me how' questions, as outlined in the needs analysis section. They are not used to analyzing a question, planning, or finding ideas. This problem scenario requires them to make a decision about something and determine

how to take it. Without being given any guidance, the learners, as can be seen in Figure 57 above, did not know what this question meant or what they had to do. That is, all the respondents reported that they did not know how to proceed to get an answer. Even though the lesson that preceded the problem scenario gave the students an opportunity to study some types of medical specialties, such as plastic surgery and reconstructive surgery, they could not understand this question. They explained that this was due to their low English language proficiency, missing details and explanations in the question, or both. They also generally stated that they need the teacher's help to understand what the question requires from them. In fact, this could have been the result of not knowing how to analyze a question and not possessing the strategies to cope with problems of comprehension when someone does not understand something. The students are also not used to planning and thinking. They have been moulded to imitate models, imitate rules, and substitute parts of paragraphs to produce 'new ones'. This really showed the learners' initial states in terms of their abilities to learn.

Eventually, for this problem scenario, the learners were guided to understand that if they want to be dentists, they should choose the dentistry school. If they want to be plastic surgeons, they have to choose the medical school. To do so, they have to decide what they want to do and why. After this step, learners started to write down information about what they knew and what they did not know.

Question 6: *Did you know how you would find resources which would allow you finding the needed information? Why or why not?*

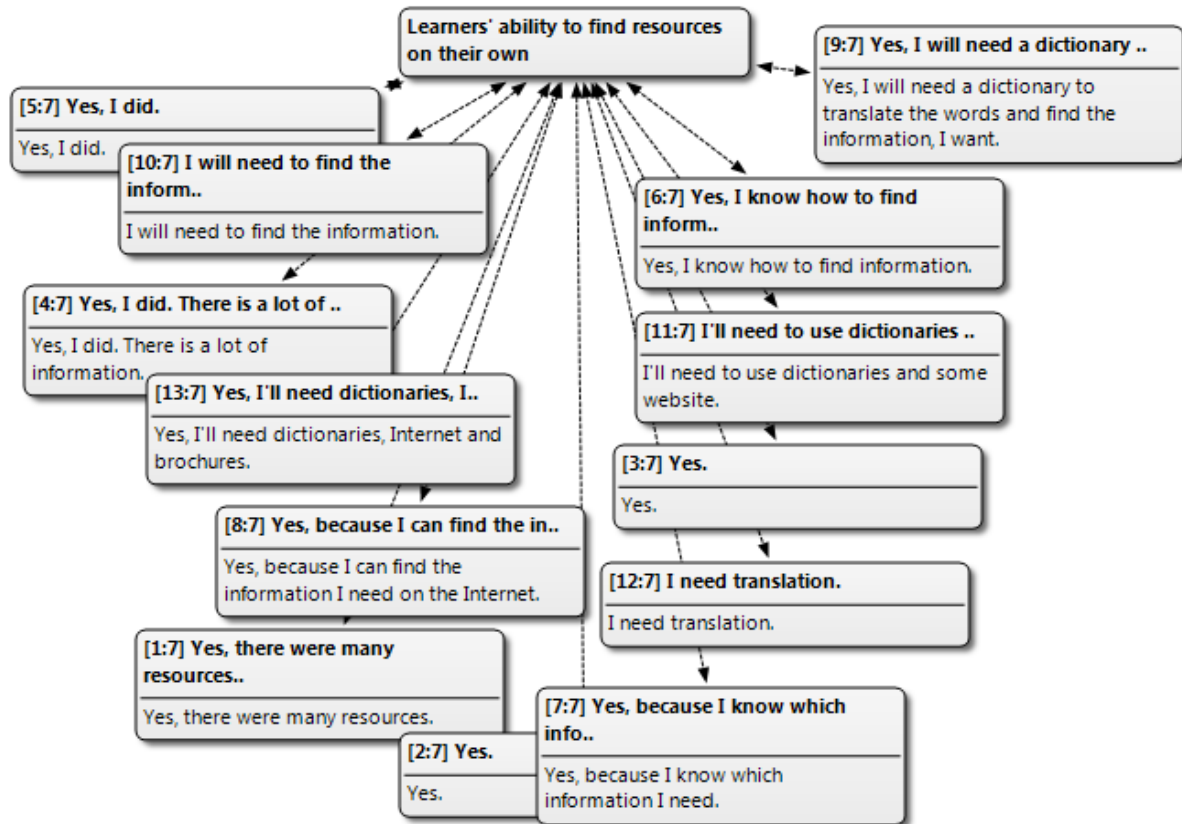


Figure 59; Learners' ability to find resources on their own

This question was devised before field work started and the students had to answer it after they had finished session 1 and the assigned 'homework'. Interestingly, many respondents said that this was not an issue and that there were plenty of resources. However, in practice only a few learners managed to complete the work and brought the necessary information to class. Some of the respondents (i.e., number 9, 10, 11, 12, and 13) reported that they needed translation tools and dictionaries. The reason is that learners, in general, made their initial search in Arabic (primary language) and had difficulties translating. This problem is expected, as it confirms the needs analysis findings that learners depend on their mother tongue and on translations during their studies.

15.1.2. Decision making Indicator

Question 2: Were you able to set your learning goals? Why or why not?

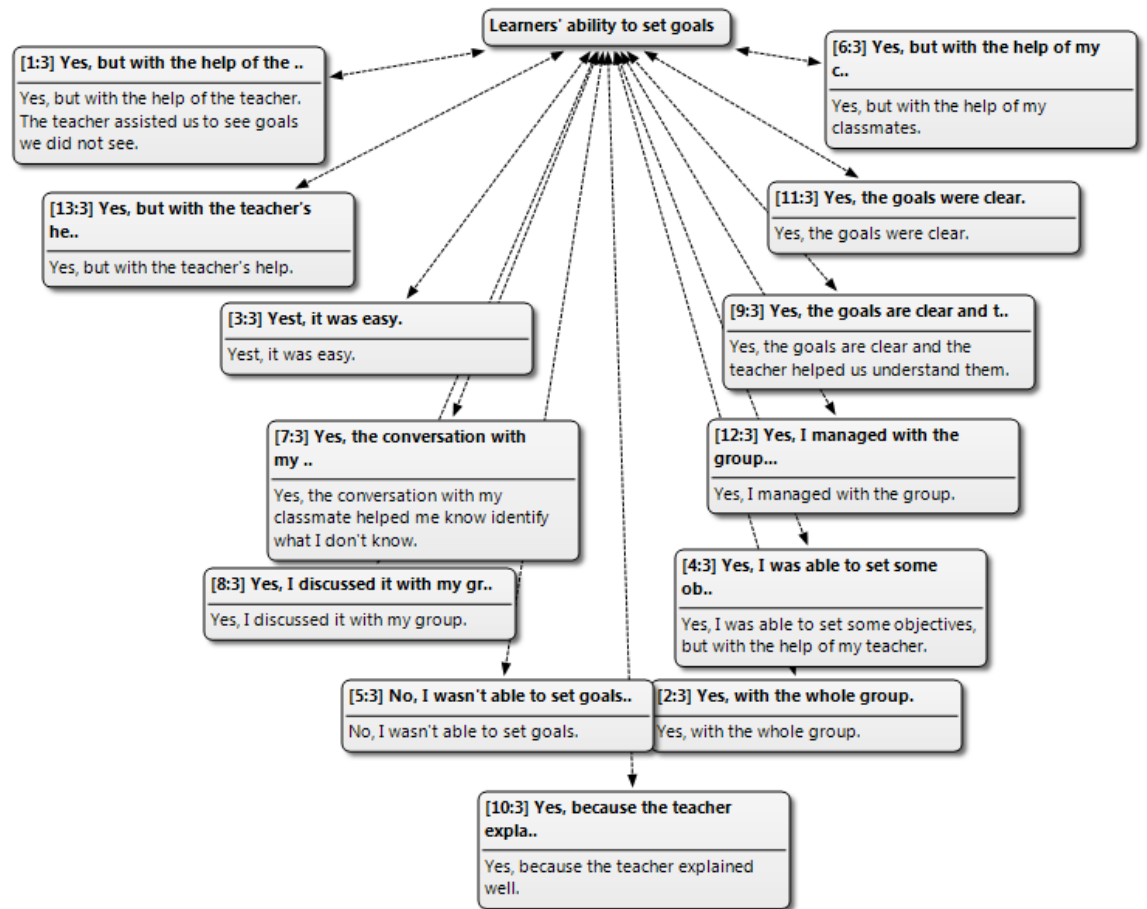


Figure 60; Learners' ability to set goals

For this step, more positive answers were obtained despite the fact that the respondents generally mentioned that setting goals was only possible with the teacher's help or within a group setting, but not on one's own. Respondent number 3 reported that it had been easy for her to set goals. However, in her response to question 1 she reported that she did not know what to do because the information provided seemed incomplete. This demonstrates a change in the learners' attitude.

Question 3: Were you able to identify your gaps of knowledge? Why or why not?

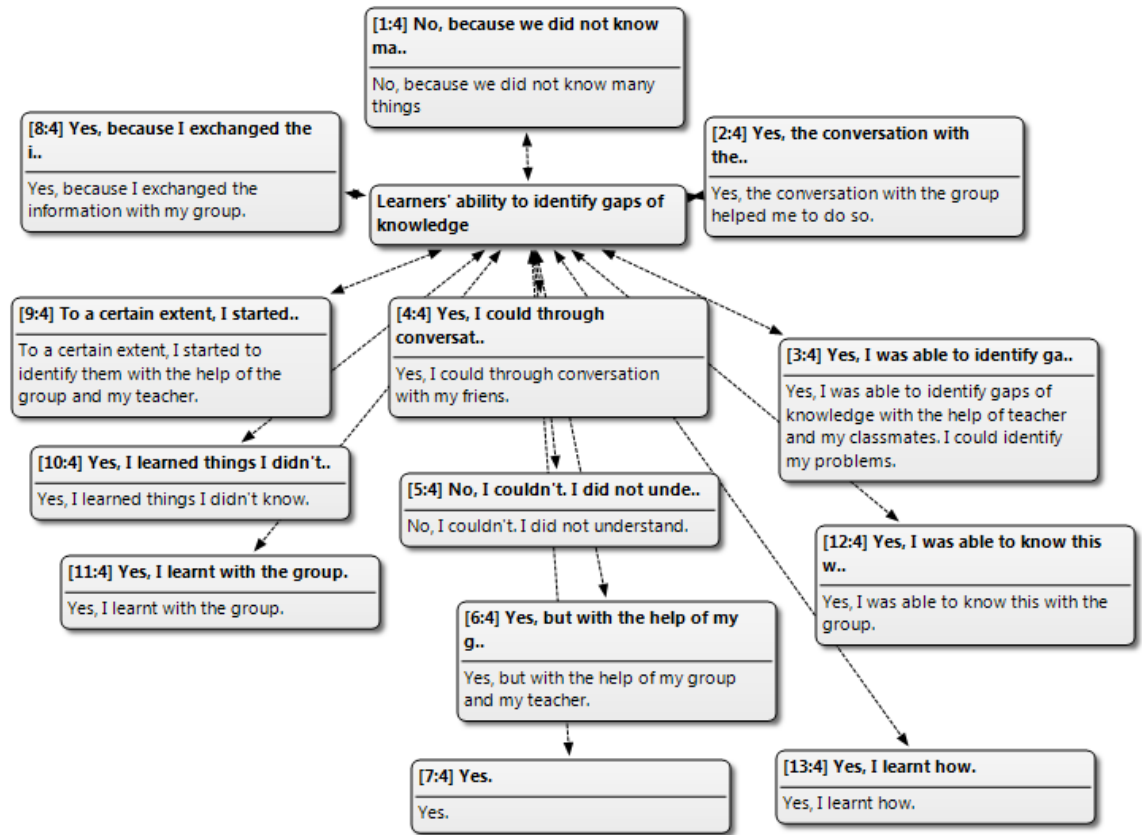


Figure 61; Learners' ability to identify gaps of knowledge

Problems arose when learners found out that they did not know all the medical specialties. Eventually, gaps of knowledge were identified. The ability to identify gaps of knowledge is a sign of learners' autonomy, but most respondents reported that they could do so only with the help of the teacher and through conversing with their classmates. Groups were formed on the basis of mixed-ability-learners, and this might have assisted the process. Respondent number 1 answered 'no, because I did not know many things.' This shows that she started to obtain an understanding about her own level of knowledge, but gaps of knowledge also mean to identify what one does not know. Respondent number 5 reported that she did not understand. This shows the students' general difficulties in coping with the new approach and the novelty of the skills and strategies, as planning or thinking were not included in the learners' prior education.

Question 4: Were you able to plan your work? Why or why not?

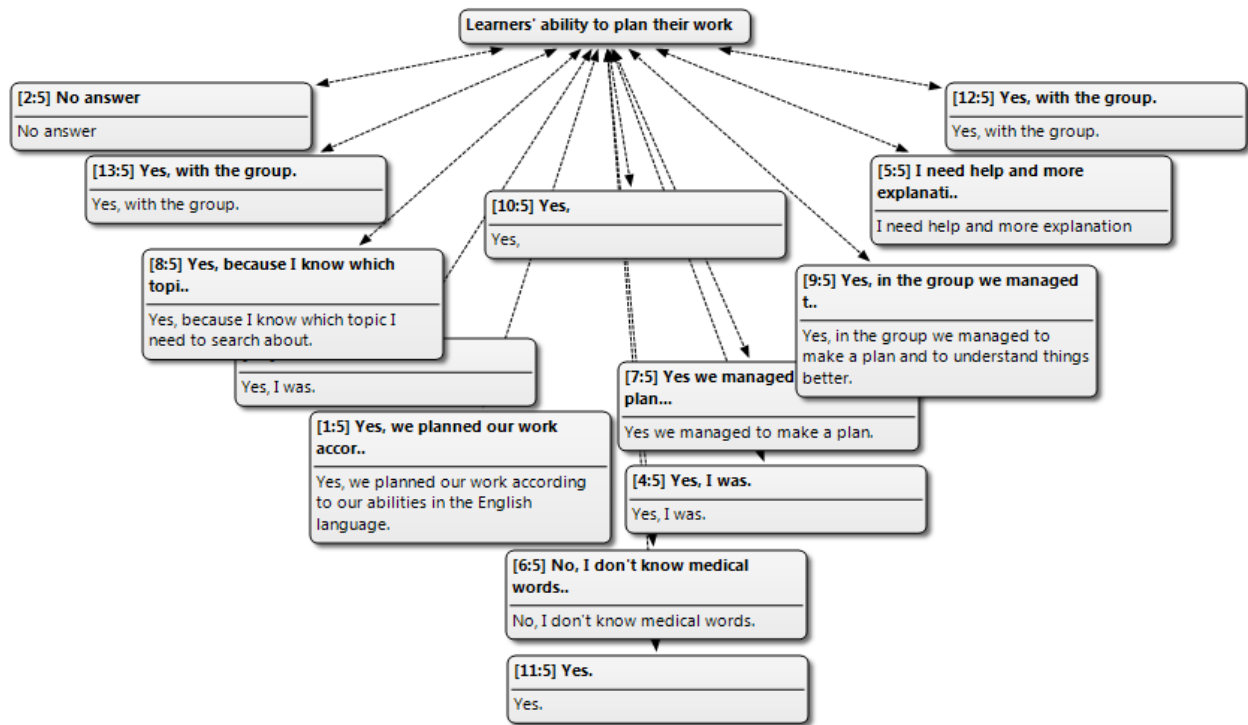


Figure 62; Learners' ability to plan their work

The ability to plan is another behavior that can indicate autonomy. While a few respondents said it was no problem for them, the majority reported that it was possible, but only with their classmates' help. Others stated that they still needed help and further explanation. Respondent number 6 said she could not plan her work because of her lack of English or knowledge of the medical words. However, this is debatable, as the learners were first allowed to use English and Arabic. That is, the missing elements are the content knowledge and planning skills.

15.1.3. Taking responsibility Indicator

Question 5: Were you able to share the work with your group members? Why or why not?

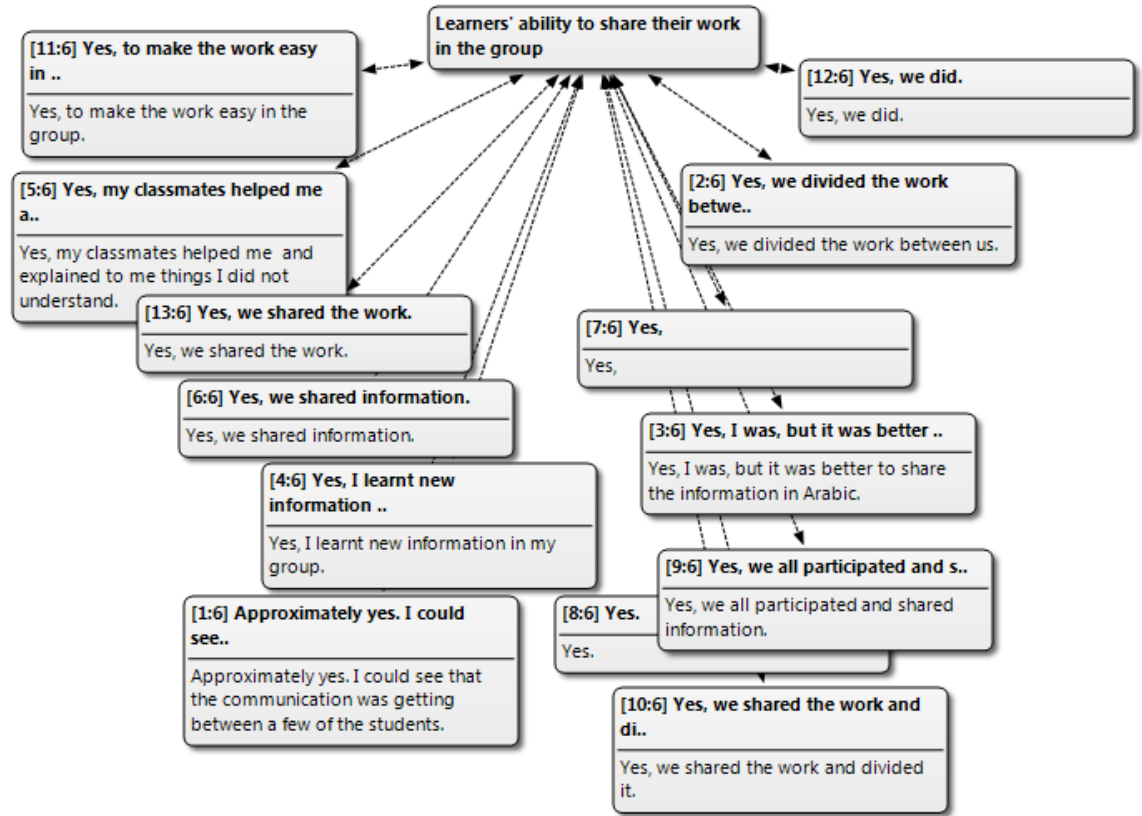


Figure 63; Learners' ability to share work in the group

Dividing the work is also a step in planning and taking responsibility. Except for respondent number 1, who reported that the work was not divided evenly, the learners generally had no issues. Students' responses also show that learners were helping one another and learning from one another. Respondent 5 said "Yes, my friends helped me and explained to me things I did not know".

Other results that may be pointed out from the students' answers in this question relate to group work and language use. Respondent number 3 expressed her preference to share the work in Arabic, her primary language. Although the purpose of group work is to converse in the target language, this problem seems to be unavoidable and is common in the literature involving people with the same mother tongue. The positive thing, however, is that learners were using Arabic to teach their classmates English words and

the final product needed to be in English. This is also due to the limited English abilities they have. However, in addition to English, the learners were also learning content and developing skills and strategies.

In the next section, the results from the second set of questions, which was administered at the end of PBL 1, are presented and discussed. This questionnaire investigates other students' behaviors related to language learning autonomy and it should complete the picture about PBL 1. Below is the analysis pertaining to this portion of the questionnaire.

15.2. Questionnaire 2: End of PBL 1

This questionnaire was given to the students at the end of the last session of the first PBL tutorial. This section was meant to be completed after the second session (now referred to as session 3), and it contains questions about the work the learners had to complete with their peers outside the classroom. Most of the learners attended session 2 (now session 3) without doing any work and the session had to be postponed to the next class. In total, 13 questionnaires were distributed to the learners who attended this session, but only 8 respondents returned them. All the questions were explained to the learners in Arabic and they were given a choice to write in English or in Arabic. The questions were coded into the three identified indicators of autonomy and were analyzed accordingly.

15.2.1. Indicator for Independent Action

Questions 1 to 11 in this portion of questionnaire examined the behaviors of students related to the 'independent action' indicator of autonomy. This indicator means the learners are able to perform language tasks on their own and it provides an indication of the learners' proficiency in the English language by determining what they can or cannot do in English. These behaviors are part of several steps required in the PBL work and questions were designed in the same chronological order as actions are supposed to take place. The figures below show the learners' responses to these questions.

- **Question 1:** *Did you manage to do the work needed and find the requested information? Why or why not?*

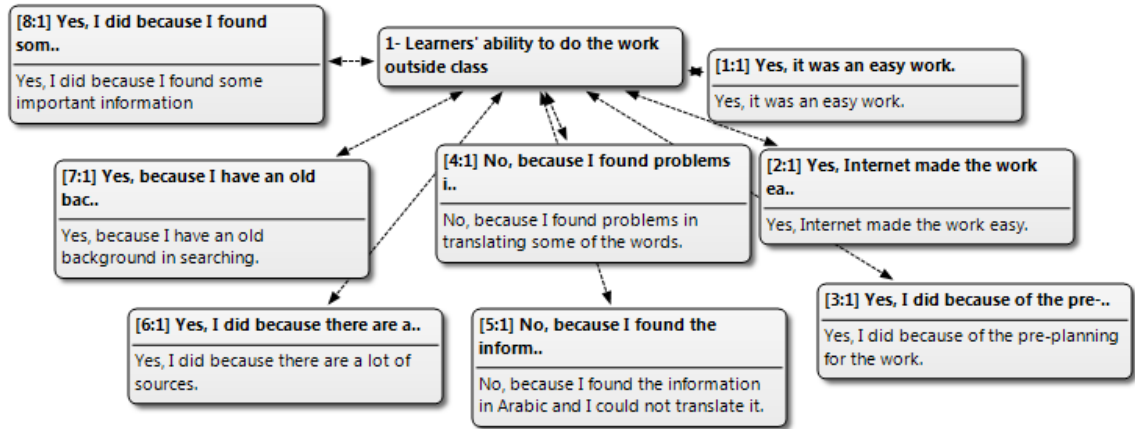


Figure 64; Learners' ability to do the work outside class on their own

Except for respondent number 5, most of the respondents reported that they did the work and it was an easy task. Respondent 3 explained that the plan in the previous section helped her to find the needed material. Respondent number 7 said she knew how to search from the previous tutorial. The other respondents explained that there was plenty of information on the topic and it was easy to find the needed material. Respondent number 5 apparently completed the search in Arabic, as she mentioned her problem was with translating the information. Although the other respondents did not return the questionnaire, the observation field notes indicated that 80% of the students did not do the work at all. This is the reason PBL tutorial 2 was postponed and was moved to the laboratory.

- Question 2: Did you find relevant information to your work? Why or why not?

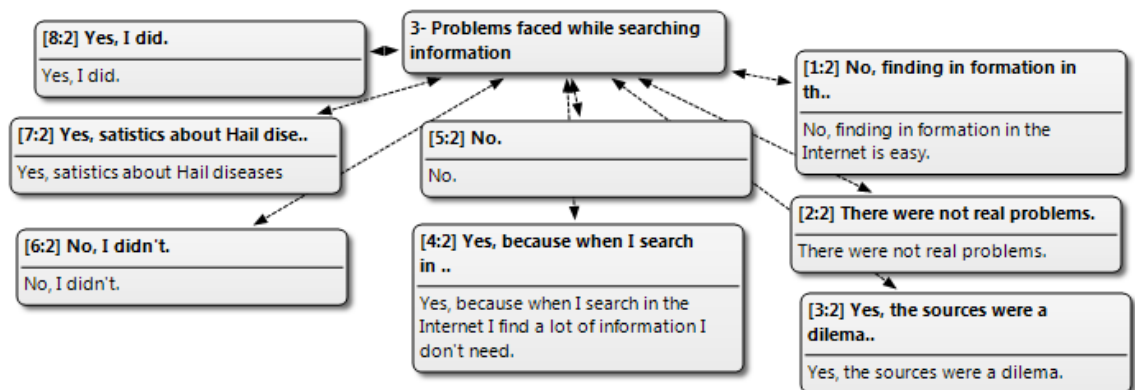


Figure 65; Problems faced while searching information

This question examined the difficulty students faced during their search for the information. In quoted responses 1, 2, 5 and 6, the participants stated that they had no

problems. Respondent number 3 reported that it was difficult to find the sources that were needed. Respondent 4 had a similar answer, as she also stated that there was too much information which she did not need, but this does suggest that the student knew what she needed and what she did not. Respondent number 7 was looking for statistics about the diseases in her hometown to choose the specialty that was required in that area. However, she indicated she could not find any data. Again, this shows that the learner was looking for something precise and knew exactly what she wanted to obtain. Only respondent number 8 stated that she faced problems, but an explanation for her issues was not provided. To conclude, approximately half of the respondents faced difficulties with finding the information on their own.

Question 4: *Were you able to understand the content of the documents you found about the topic you needed?*

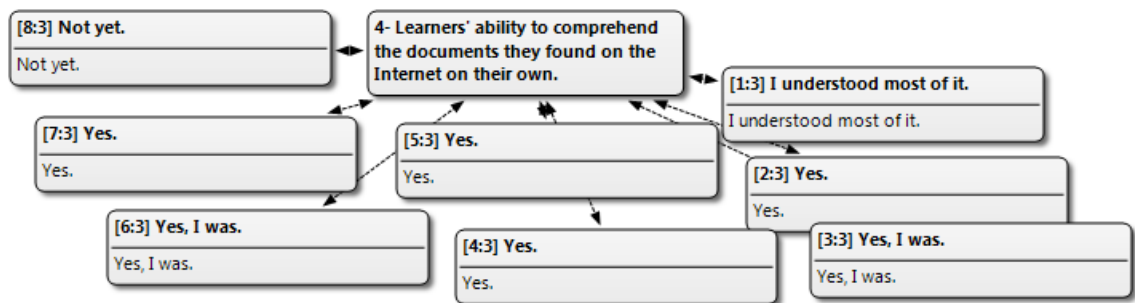


Figure 66; Learners' ability to comprehend the problems they found on the Internet on their own

This question investigates how much learners were able to comprehend the material they required as part of the problem-scenario they were given. As indicated, only one respondent reported that she could not comprehend the material. However, to obtain a broader understanding of the students' comprehension, it is important to consider how the students managed to comprehend the material. The answer to this query will follow in the next figure below.

- Question 5: *How did you cope with problems of comprehension?*

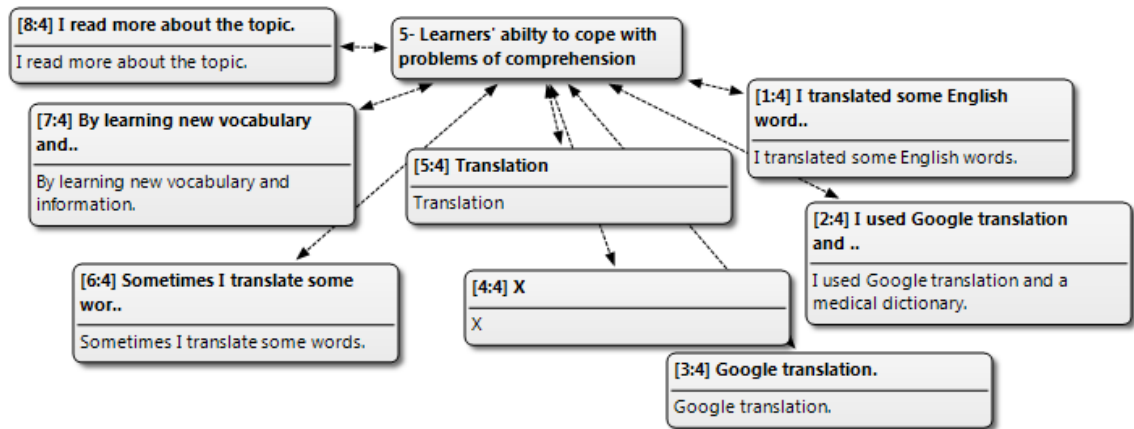


Figure 67; Learners' ability to cope with problems of comprehension

In this question, the learners were asked to explain how they coped with comprehension difficulties they experienced during the search for material. Respondents 2 and 3 reported that they used Google translate. Respondents 1, 5, and 6 mentioned translating without indicating the source that was used to translate the material, but it is possible they also used Google translate. Respondent number 4 did not provide a response to this item. Respondents 7 and 8 noted that they looked for more information. Google translate, as reported in the needs analysis, is a basic working tool for the students. In fact, some of the students, as can be seen in the field notes, conducted their planning and searches in Arabic and then translated the products into English using this tool.

- **Question 6: Were you able to summarize the information you found without major problems? Explain.**

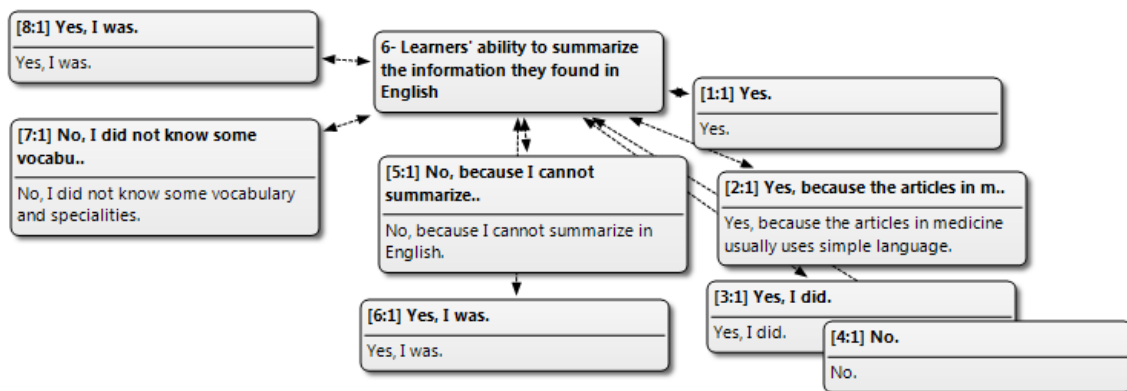


Figure 68; Learners' ability to summarize the information they found in English

In question 6, the learners were asked whether they were able to summarize their work in English. Respondents number 1, 2, 3, 6, and 8 stated that they were able to do so, but they generally responded briefly without explaining their responses (even though they were asked to provide reasons). On the other hand, respondents number 4, 5, and 7 reported that they could not summarize their work in English, providing reasons that related to their limited knowledge of English, inability to summarize, and a lack of vocabulary knowledge.

- **Question 7: Do you think you were able to report your summaries to your peers and share the information with them without major problem? Explain.**

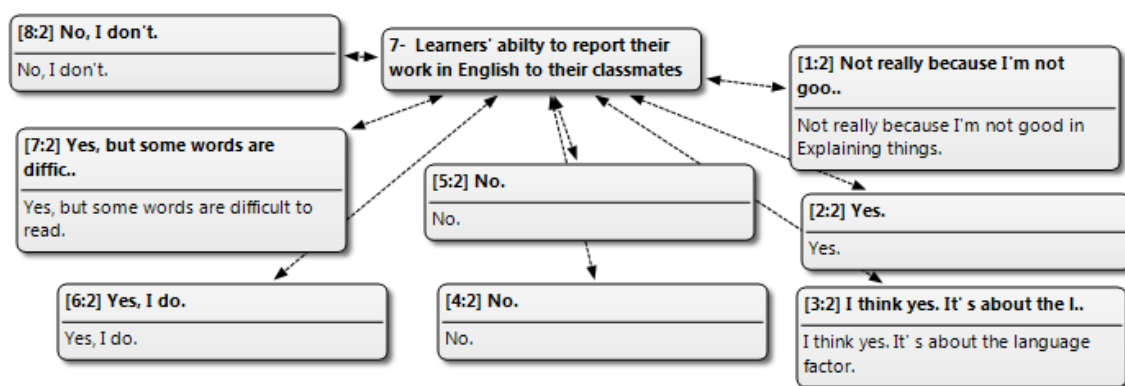


Figure 69; Learners' ability to report their work in English to their classmates

This question is partially related to Question 6. It is assumed that a student who is able to summarize work in English should be able to report it in English to her

classmates. However, it turned out that there were more ‘Nos’ in the answer to this question and learners sounded more reserved in their answers. Respondents number 2 and 6 said ‘Yes’, but without any further explanations. Respondent 3 said she thought she could, but language was the problem. However, in her earlier response she mentioned she could summarize her work in English. Respondent number 7 said she could, but she could not read the words. It seems to be a pronunciation problem. Respondents number 1, 4, 5, and 8 said they could not report their work in English to their peers.

- Question 8: Did you use only the English language throughout the two tutorial sessions with your classmates?

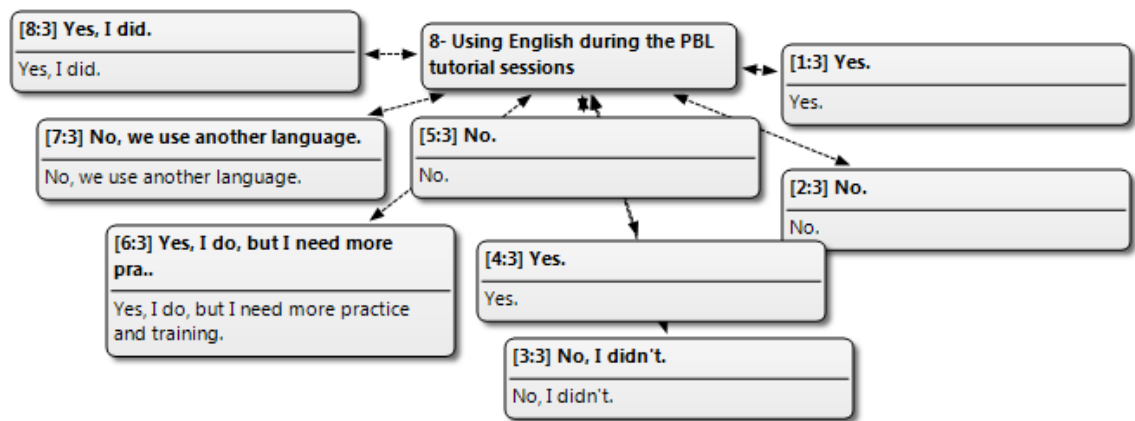


Figure 70; Learners’ ability to communicate in English during the PBL tutorial sessions

This question sought to determine how the students communicated with one another and whether they used English. This behavior was also noted during the field observation and these field notes are compared to the students’ answers. Respondents 1, 4, and 8 affirmed that they did. Respondent number 6 said she did, but she felt she needed more practice. Respondents number 2, 3, 5, 7, and 8 said they did not communicate in English. This problem is not unique to this study, as previous research on PBL in the language classroom has evidenced similar findings when the learners come from the same community. In the field notes, it was found that “students used Arabic most of the time throughout the five PBL tutorials; they used English to say technical medical words, but their communication was basically in Arabic. They used English in their work to be presented and for their final presentations.

- **Question 10: Do you think you were able to present and explain your work to the other groups and to the tutor? What would you do to improve your presentation?**

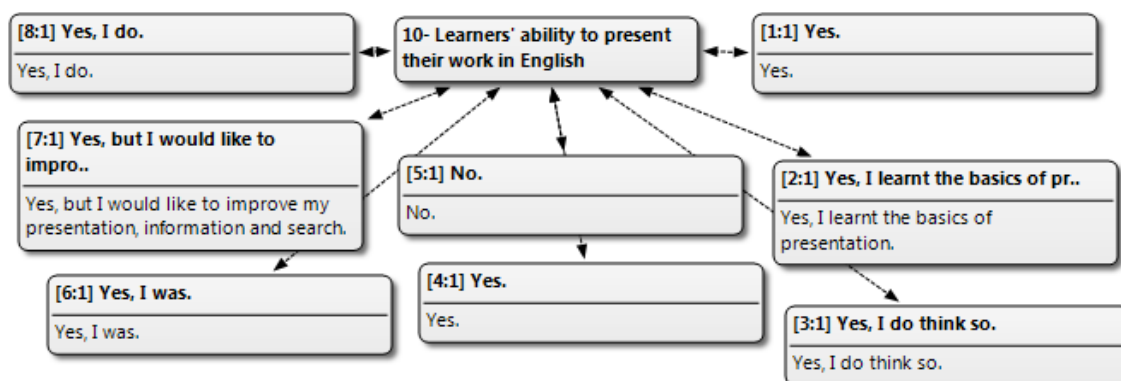


Figure 71; Learners' ability to present their work in English

In this question, the learners were asked whether they were able to give their presentations in English. This task was preceded by many steps, each of which should enable them to perform this function. Apart from participant 5, who did not provide any explanation, most of the students said they could present in English. Respondent number 7 also expressed her desire to learn more and improve her presentation. Respondent number 2 said she learnt the basics of presenting. These presentation-related responses reflected by the participants are the anticipated outcomes following the preparation phase. The question includes a second component that requests learners to provide suggestions about how they could improve their presentations, but none of the students provided any suggestions. Perhaps, this should have been included as a separate question to ensure they attended to it. Similarly, this can indicate that learners are still unable to know how they can possibly improve their work, another behavior relating to autonomy.

- **Question 11: Were you able to use varied resources (videos, pictures, etc. to illustrate your work? Why or why not?**

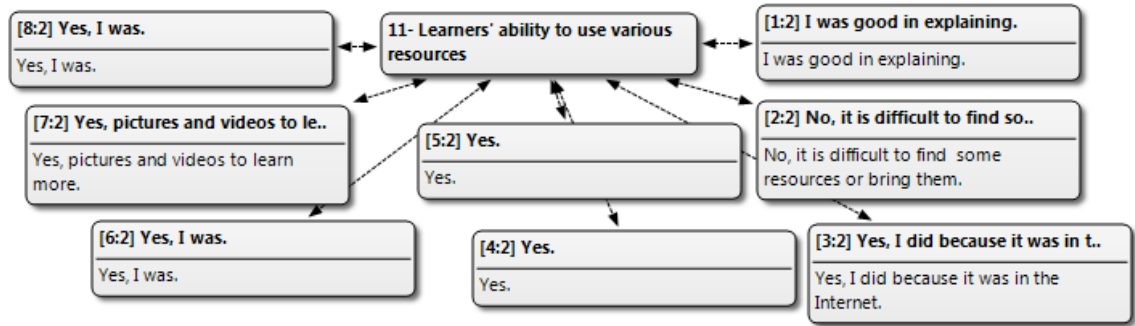


Figure 72; Learners' ability to use various sources

In this question, the learners were asked to comment on their use of resources available on the Internet or other resources such as books, encyclopedias, dictionaries, and videos. Each of the learners said they did, with the exception being respondent number 2. However, this particular participant's answer indicates that it was not because she was not able to use various sources, but that she was just unable to bring them to class. In the field notes, it was outlined that the learners primarily used the Internet and student guides from the medical schools, a feature that may support students' autonomy.

15.2.2. Indicator for Decision Making

Questions 2 and 9 were meant to collect data related to the 'decision making' indicator of autonomy.

- **Question 2: Did you find relevant information to your work? Why or why not?**

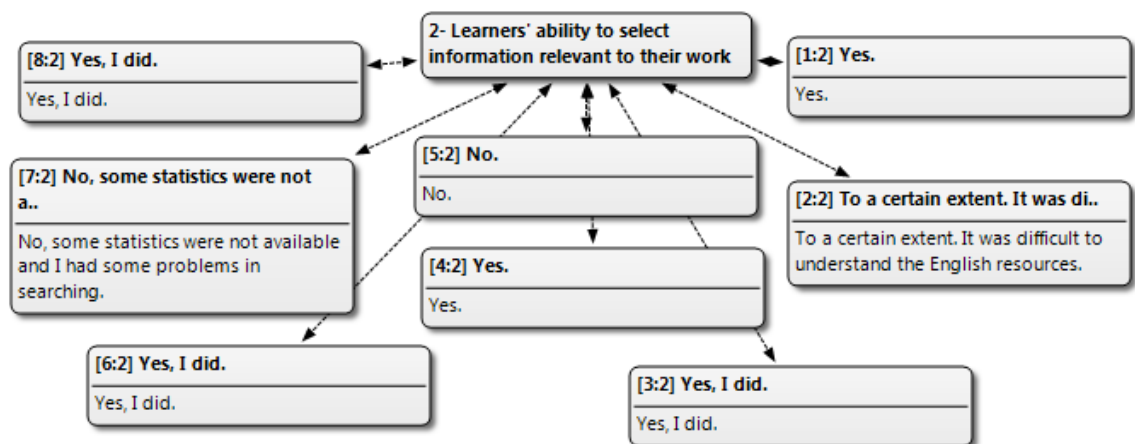


Figure 73; Learners' ability to select information relevant to their work

In this question, the learners were asked to report whether they managed to select the right information they needed to answer questions or sections they had in their plans. Six respondents reported they could. Respondent number 2 said it was difficult to understand English and she did not provide an absolute 'Yes' response. Respondent number 7 said she experienced some issues searching, and, eventually, she was unable to locate the information that was needed.

- **Question 9: Were you able to make decisions using the information you found and share with your peers? Why or why not?**

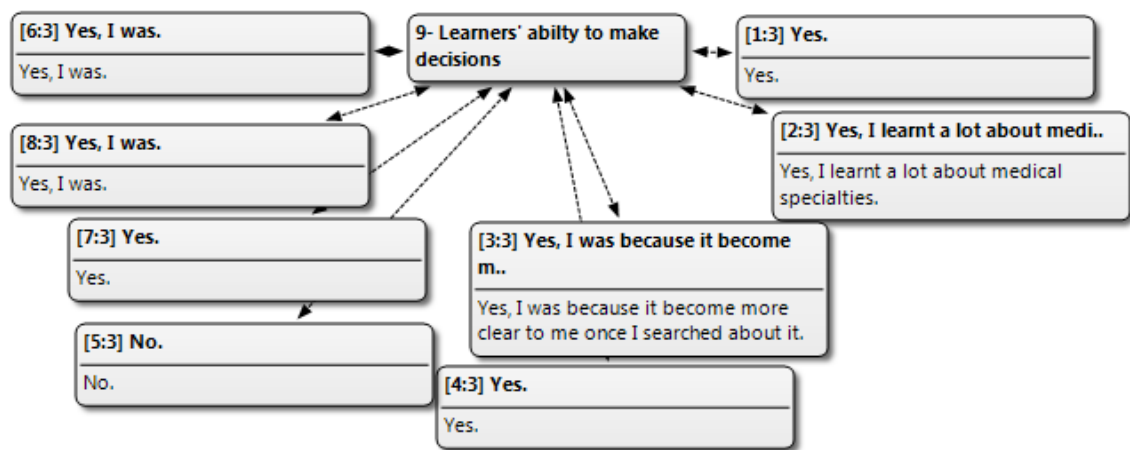


Figure 74; Learners' ability to make decisions

In PBL, the step that comes after the collection of information is a compilation of work and editing the plan of work that necessitates making decisions. Seven of the respondents said they could, but 5 of them did not provide explanations. Respondents 2 and 3 reported that once they had learnt about medical specialties, the topic of their problem scenario, what they wanted to include in their work became clear to them.

15.2.3. Indicator for Responsibility Taking

Questions 12, 13, and 14 are about self and peer evaluation, which are grouped under the 'taking responsibility' indicator of autonomy.

- **Question 12: Were you able to understand your peers' feedback?**

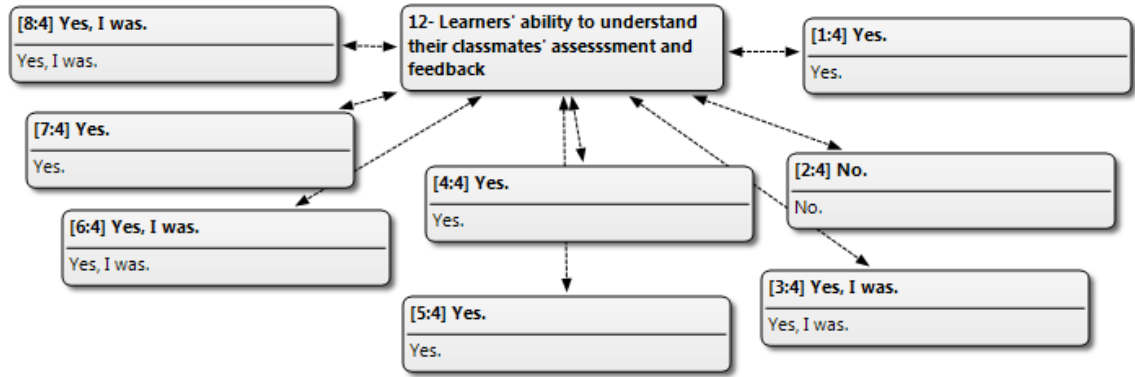


Figure 75; Learners' ability to understand their classmates' assessment and feedback.

In this question learners were asked whether they understood the feedback their peers' provided to them. Except for respondent 2, all the students responded 'Yes'. This question should have been completed with the phrase 'why or why not?' to have fleshed answers.

Question 13: Were you able to understand your tutor's feedback?

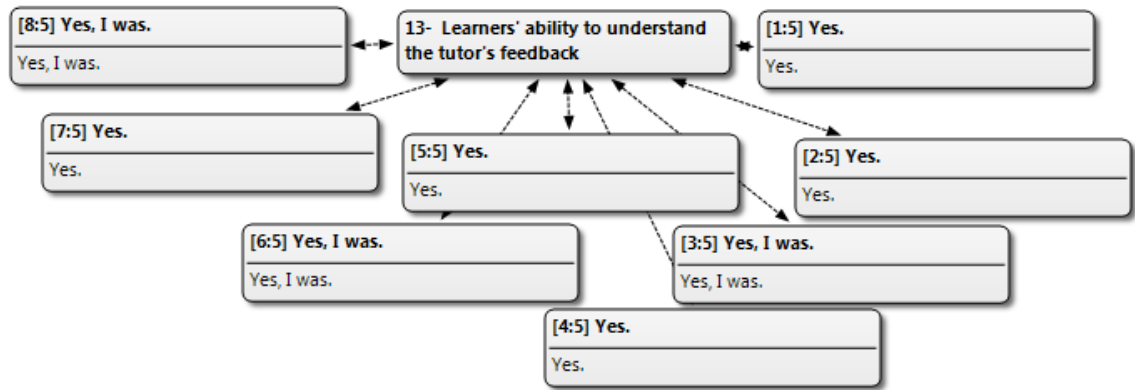


Figure 76; Learners' ability to understand their tutor's feedback

All the respondents reported they understood the tutor's feedback, and it is anticipated that this feedback would assist the students with subsequent presentation. Again, we notice here that the question should have asked for some explanations.

- **Question 14: Were you able to assess your peers in the other groups and give feedback on their groups' work? Why or why not?**

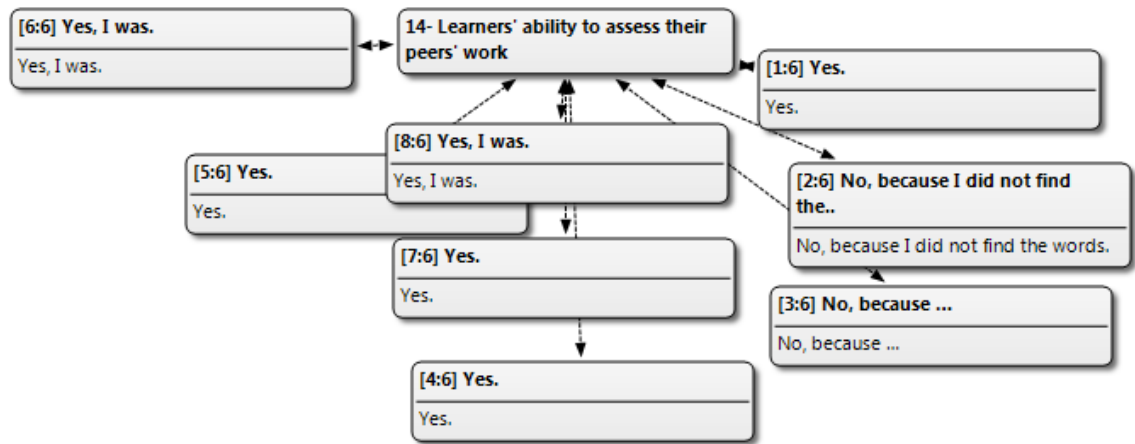


Figure 77; Learners' ability to assess their peers' work

The learners were asked whether they could assess their peers during their presentations. They all said 'Yes', with exceptions for respondents number 2 and 3. Respondent number 3 did not finish answering this question and did not explain why. Respondent number 2 said she could not find the words. This has to do with her English proficiency and it does not necessarily mean that she could not evaluate her peers' work.

15.3. Summary

The questionnaires assigned to the students during the first PBL tutorial sessions could show that learners generally did not possess the ability to understand a problem-scenario, which, according to them, did not contain instructions about what to do. This shows that the method was completely new to the learners. The learners needed help in most stages of this tutorial. Most of them came to the second PBL session with no work done and seven students withdrew from the course between sessions 1 and 3. The students who stayed generally started to cope with problems and to understand what to do. A lack of language emerged as a major challenge for students' in their capacity to work autonomously. The students used Arabic to communicate and Google translate to understand material they found in English, or they did their search in Arabic and translated their work in English, which is compatible with the findings in the needs analysis. Again this has to do with problems in the English language. Students had different attitudes towards group work, but generally there was some cooperation

between them and they were tutoring each other. Students sometimes overestimated their abilities and showed certain contradictions in their reports, such as the way they commented on their ability to find the needed material and to share their work with their peers. This could be noted through the comparison of their answers with the field notes.

One limitation, we can report is that not all the course participants returned the second questionnaire; only eight, out of the thirteen students who remained on the course, did. This leaves the picture incomplete as we could have found out more problems if everybody had responded.

However, the observation scheme we used can compensate for this lack as it traced students' behavior both as individuals and in groups as we will see in the next chapter.

Chapter 16: Structured Observation and Field Notes

Two types of observation were conducted: systemized observation and field notes. The structured observation was conducted in three different sessions for each PBL tutorial. The grid was divided into three parts and each part was used for a session in a PBL tutorial. Sessions 1 and 3 were for the groups of students and session 2 was for each individual student. The grid enabled the recording of observations of the indicators of autonomy in a very limited time frame in the classroom, but it also resulted in the attainment of a large amount of information about students observed both in groups and individually. The data derived from the structured observation of the five PBL tutorials were first transcribed into single observation schemes for each subject that was observed individually as well as for each group (appendix number 13). These raw data were analyzed by a professional statistician who applied descriptive statistical methods. Mackey and Gass (2005) explained that it is feasible in qualitative research to quantify data.

As a simple, concise way of reporting general research findings, quantification of some kind is used by many qualitative researchers, who commonly gather enough data to fill a book, and then pare down their data and findings to a length that conforms to journal publication requirements. Quantification is also valuable in that numerical descriptions can make it readily apparent both why researchers have drawn particular inferences and how well their theories reflect the data. Another benefit of quantification is its usefulness to other researchers who may be interested in ascertaining quickly whether the research findings are relevant to other contexts (p. 182).

The results which show the development of the students over the 5 PBL tutorials were then reported in tables and illustrated by bar charts and timeline charts.

The field notes which we had taken along with the observation through the observation scheme were useful to enrich the latter and to provide explanations to certain behaviors noted on the scheme. These notes were taken while the tutor was facilitating the work and mentoring the learners. They were then transcribed (appendix number 13) and thematically analyzed. The data were taken from the five PBL tutorials and each PBL tutorial notes were grouped together to consider any differences that occurred during the course. The first number in each quote corresponds with the number of the PBL tutorial,

which helps with associating each behavior with the time it was observed over the course of the PBL.

There is one issue that needed to be dealt with, which resulted from field problems in the first PBL tutorial, such as the problems of learners' withdrawal and the changes in the group numbers and members. The sessions also needed to be extended to three instead of two and the setting for session 2 had to be adjusted. In this session, learners were supposed to do work outside the classroom, but as we already explained, 80% of them did not. The observation scheme for the first session was the same. The original observation scheme, which had items related to the students' homework and classwork for session 2, was divided into two. The first part, which aimed to collect information about the classwork, was reworded and the last part was left the same. However, this latter portion is now used in Session 3.

The initial tutorials started with three groups who chose their own nicknames: Shining Stars, the Doctors, and Hail Roses. Only 2 students from Hail Roses remained in the third session of the PBL tutorial, so they were merged into the 'the Doctors' and the 'Shining Stars' groups.

16.1. Individual Students' Observation: Session 2

These are the results from the observation session that was conducted during session 2, and each student was observed individually. During this session, the students had to find information that was needed for their own part of the work. This step requires (1) an exploration of material available on the Internet on one's own and (2) the selection of relevant information to one's work. These behaviors were coded as (1) *taking responsibility* and (2) *making decision*. During this session, the next steps require the learners to comprehend the material and report, in English, the general meaning to their classmates (see points 8 and 9 in table 11, below, for examples). These two steps were coded as *independent action*. Eventually, on a scale from 1 to 4, each participant was marked based on how much well they performed. The *independent action* indicator seems to require more detailed language knowledge and familiarity with the topic. It also requires deeper understanding of the text, as compared to the two other indicators. As outlined in the results, it is this indicator that fluctuated and was inconsistent across the learners.

<i>Taking Responsibility</i>	<i>Making Decision</i>	<i>Independent Action</i>
6- The student explored the information on the Internet in English without help from the tutor.	7- The student was able to select the right information to fulfill the work plan without help from the tutor.	8- The student was able to comprehend her material using reading strategies and available learning aids without help from the tutor.
		9- The student was able to tell her group the gist of her part without major problems.

Table 14; autonomy indicators in session 2 PBL tutorials and relating behaviors

In order to avoid revealing the learner’s identity, the students’ initials were used to refer to them. When students had similar initials, the participants were referred to as XX1 and XX2 for a set of initials. Each participant’s scores for every indicator of autonomy were first presented in a separate figure to provide a more precise and detailed picture of learners’ development. In the literature review, it was also explained that the edges are blurred between these indicators since there is sometimes an overlap in the meaning (see Chapter 8). Eventually, the average of the three indicators was calculated and displayed in a second figure, for each participant, in order to provide a more holistic picture of each learner’s changes in learning autonomy in general. The blanks in the bar charts refer to unavailable data due to a student’s absence.

Figures 78 and 79 represent the participant MN’s scores over the five PBL tutorials.

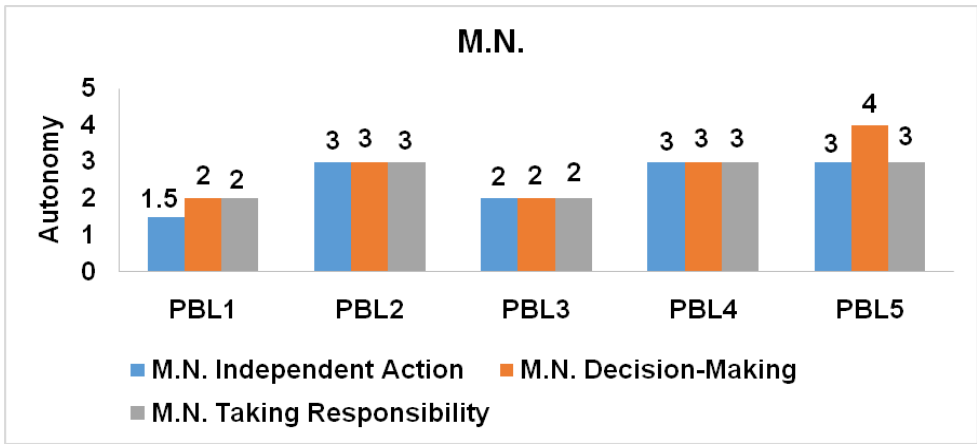


Figure 78; the Student MN's Scores for Each Indicator

The student MN seems to have improved consistently in relation to separate indicators, except for PBL tutorial 1 and 5. In PBL1, this student scored slightly lower on *independent action*, as compared to *decision making* and *taking responsibility*. By contrast, she scored higher on *decision making* than *independent action* and *taking responsibility* in the last PBL tutorial. In figure 78, her general average scoring pattern for each PBL tutorial is displayed.

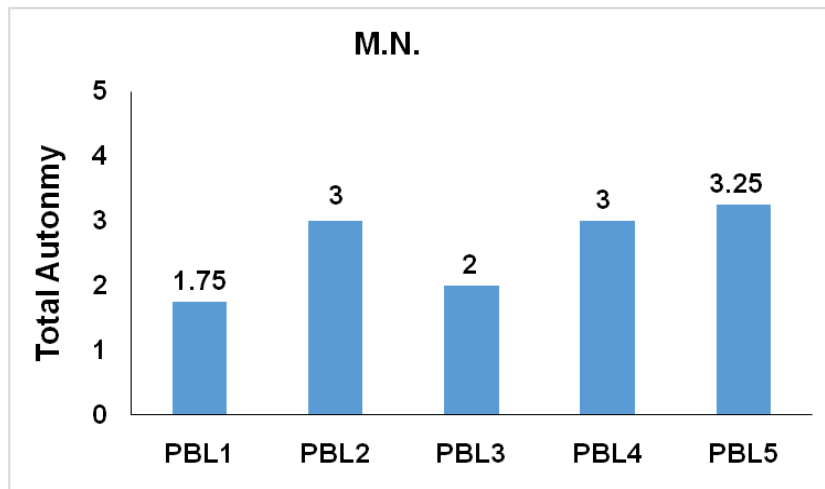


Figure 79; Total Autonomy Average of the Student MN over the 5 tutorials

This learner, MN, seems to have benefited from the course, especially if consideration is given to the rises, which indicate a positive change. Apart from PBL 3, she scored higher in PBL 2, 3 and 5, as compared to PBL1. We can also see that the change between PBL 1 and 2 was really high, which moved from 1.75 compared to 3. This change was followed by a fall in PBL 3. However, PBL 4 seemed similar to that in PBL 2, but it was slightly higher in PBL 5, which indicates a level of stability and continuous improvement.

Figures 80 and 81 below represent the participant DH's scores over the five PBL tutorials.

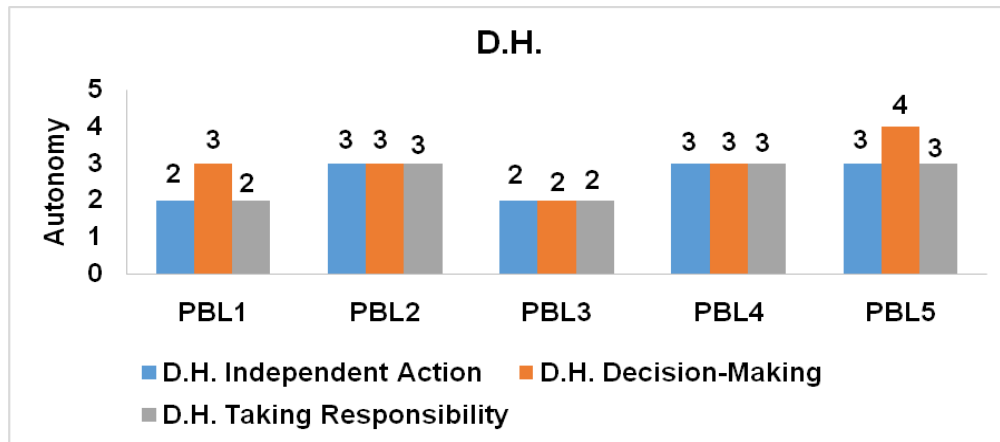


Figure 80; the Student DH's Scores for Each Indicator

In figure 79, there is great similarity in the participant's overall performance over the three indicators, with the exception being PBL 1 and PBL 5. The student DH scored higher in *decision making* across these two tutorials, as compared to the other indicators. This indicator was higher at the start in PBL1 than the other two indicators, and it showed similar development to other indicators in PBL5. This indicates a similar rate of change. Apart from PBL 3, the learner showed either an increase or consistency in the three indicators across PBL 2, 4, and 5.

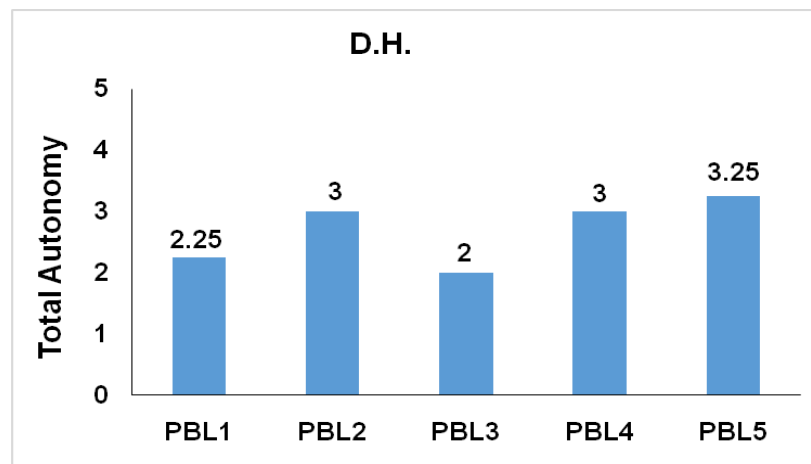


Figure 81; Total Autonomy Average of the Student DH over the 5 tutorials

Except for PBL 3, participant DH showed a positive change over the 5 PBL tutorials. The chart indicates a rise from PBL 1 to PBL2, and other rises from PBL 3 to PBL 4, and then from PBL 4 to PBL 5. Again in this figure, the changes recorded

between PBL 1 and PBL 2 are higher than the changes that seem to have occurred in subsequent tutorials, such as in PBL 4 and PBL 5. In general, the changes for this student have been slow, but generally steady.

Figures 82 and 83, below, indicate the student MA scores over the 5 PBL tutorials.

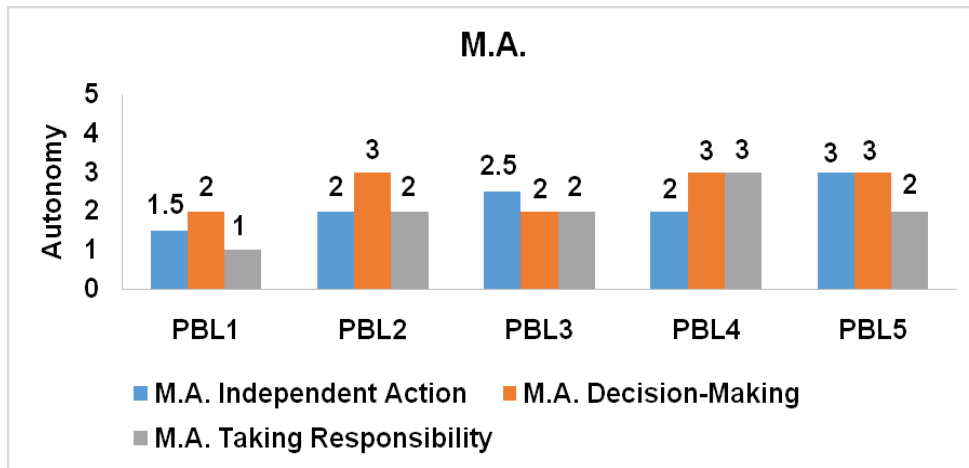


Figure 82; the Student MA's Scores for Each Indicator

Participant MA showed more irregular changes marked by rises and falls in the different indicators. At the beginning of PBL1, it is evident that she was initially an average student scoring low in *taking responsibility*, for instance. This indicator seems to have been enhanced with some stability between PBL 2 and PBL 3, and then a more positive change seen in PBL 4. However, in PBL 5, the participant scored lower on this indicator. She also showed very irregular changes in *independent action*, with several rises and falls. *Decision making* appeared to improve more steadily, except for PBL 3.

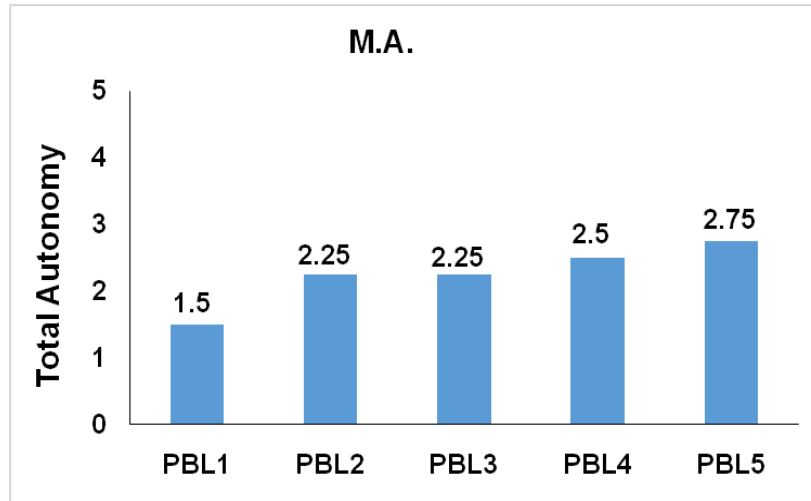


Figure 83; Total Autonomy Average of the Student MA over the 5 tutorials

Despite the irregularities in the pattern change for particular indicators that the participant MA showed in figure 82, on average, she showed more constant and regular changes than the other participants. For instance, the student did not score lower in PBL 3. By contrast, she showed stability between these two tutorials. The changes from PBL1 to 5 were minimal, but they were more regular than the other students displayed. However, we can also see a higher change between PBLs 1 and 2, just as the other participants showed. The change between PBLs 3 and 5 is also important.

Figures 84 and 85 below represent the participant NA's scores over the five PBL tutorials.

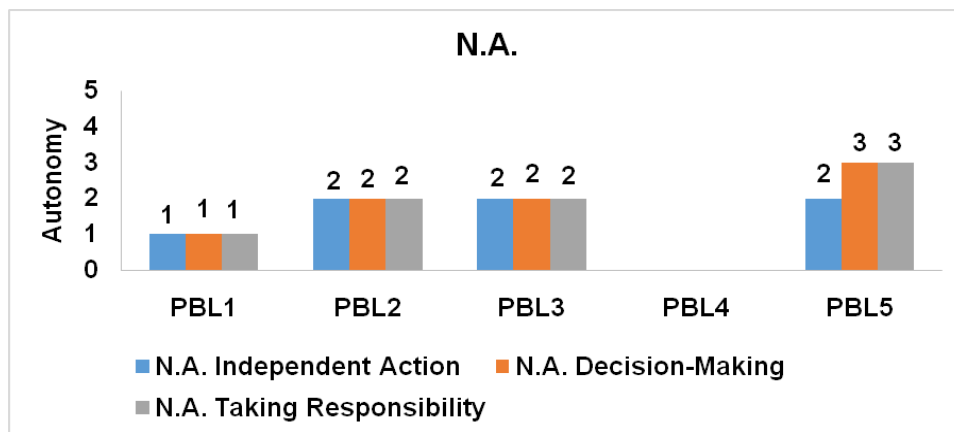


Figure 84; the Student NA's Scores for Each Indicator

Participant NA showed a constant positive change, despite her absence in PBL4. She still demonstrated the same rate of development, even after she missed the second session of this tutorial. She also showed similar changes for all the indicators. Similar to the other previously discussed figures, the greatest change took place between PBL 1 and 2. Unlike the other participants, though, she remains among the students who maintained similar scores across PBLs 2 and 3, instead of a negative change. The indicator *independent action* was marked by an improvement between PBL 1 and PBL 2, but did not improve from PBL 2 to PBL 5.

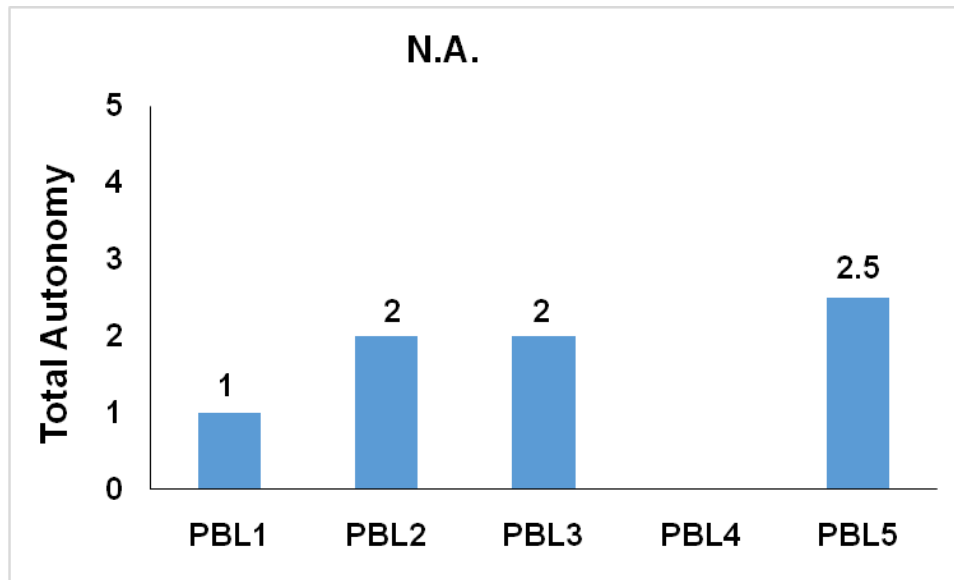


Figure 85; Total Autonomy Average of the Student NA over the 5 tutorials

As we can see in figure 84, learner NA showed overall stability in the improvement she made, with a positive change from PBL 1 to PBL 5. Like the other learners, she showed a stronger change from PBL1 to PBL 2, as compared to that from PBL 2 to PBL 3 or PBL 3 to PBL 5. Although she had a higher score in PBL 2, as compared to PBL 1, this score was still low in PBL 2. Unlike her peers, she did not demonstrate a negative change in PBL 3, though there was no rise. The trend, overall, shows regular and steady improvements in her autonomy.

Figures 86 and 87 show the participant RK's scores over the five PBL tutorials.

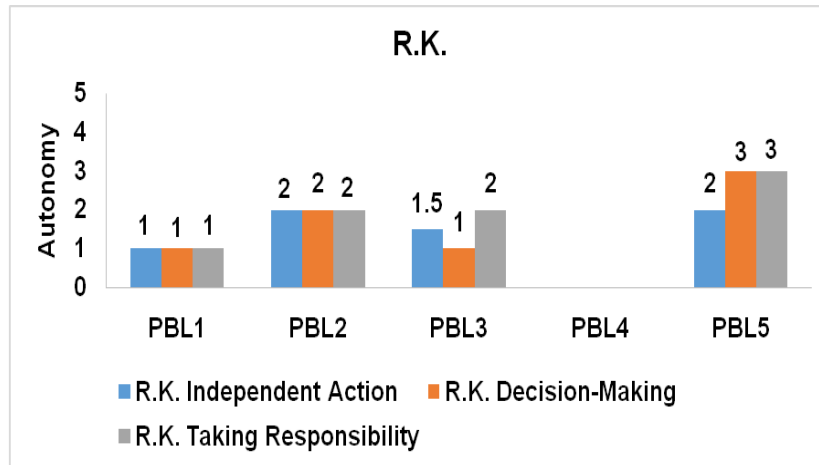


Figure 86; the Student RK's Scores for Each Indicator

Participant RK's scores were very low at the very beginning (i.e., PBL 1), indicating a real problem with learning autonomy. Despite her absence in session 2, PBL 4, she still scored higher towards the end, which shows an important change between PBL 1 and PBL 5. Like many other students, she scored lower in PBL 3 than in PBL 2, particularly in *independent action* and *decision making*. Apart from the decline in PBL 3, her scores progress slowly but steadily, especially on the indicator of *taking responsibility*. The *decision making* indicator fluctuates more, but it is as high as *taking responsibility* in PBL 5. *Independent action* seems to have improved less, as compared to these two other indicators.

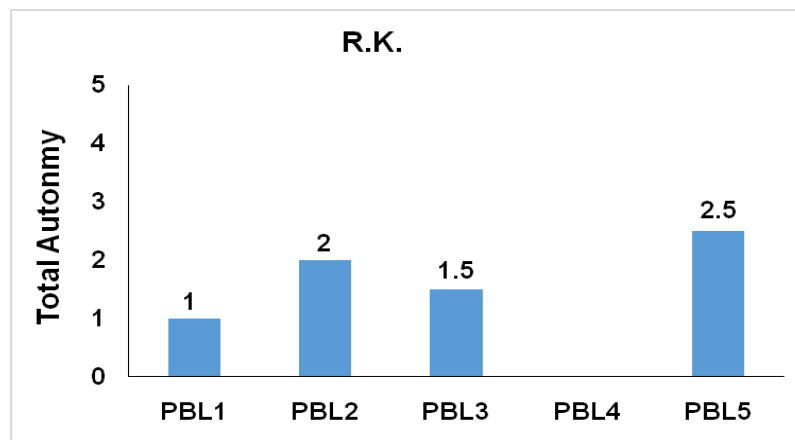


Figure 87; Total Autonomy Average of the Student RK over the 5 tutorials

On average, student RK's learning autonomy has been enhanced, with an important change between PBL 1 and 5 and a fall in PBL 3, which is similar to many other students.

Figures 88 and 89, below, represent participant TA's scores over the 5 PBL tutorials in session 2.

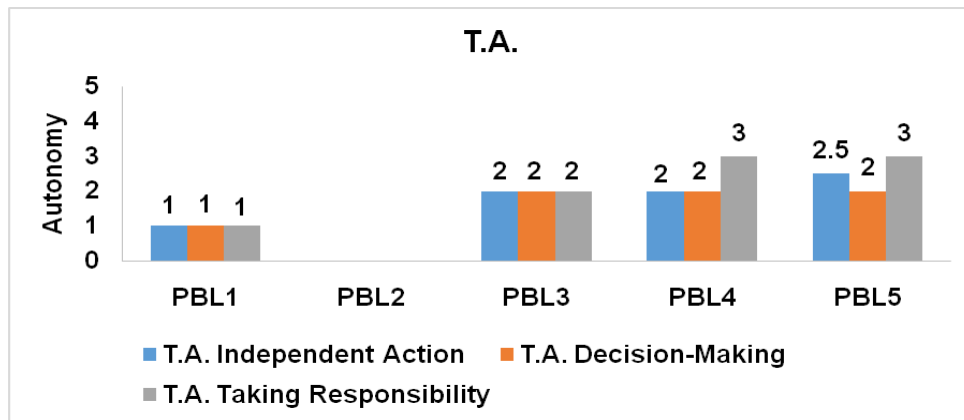


Figure 88; the Student TA's Scores for Each Indicator

Similar to her classmates, student TA has progressed in her scores over the five PBLs, but with less fluctuation. The indicators *independent action* and *taking responsibility* have increased slightly more in the last PBL, as compared to *decision making*.

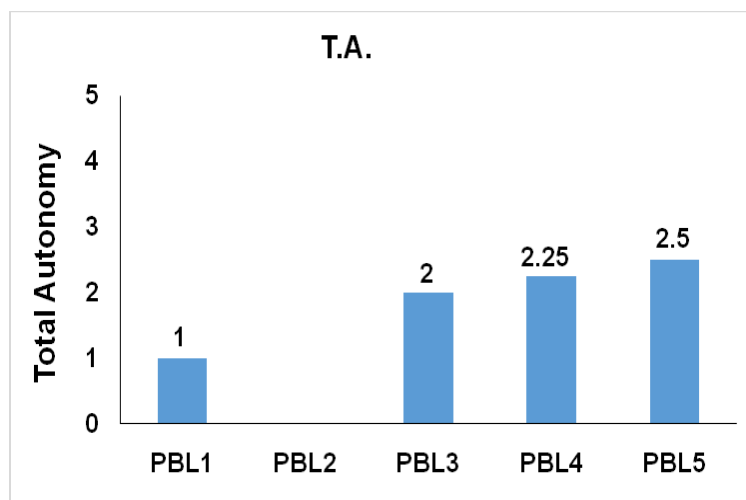


Figure 89; Total Autonomy Average of the Student TA over the 5 tutorials

The figure above shows gradual and constant progress in the student's autonomy, despite the participant's absence in PBL2. In general, an important change is seen between PBL 1 and PBL 5. In the last PBL tutorial TA scored only 2.5 out of 4, which means, she still needs to work more to achieve higher levels of autonomy.

Figures 90 and 91, below, indicate students JK's scores across the five PBL tutorials in the second session.

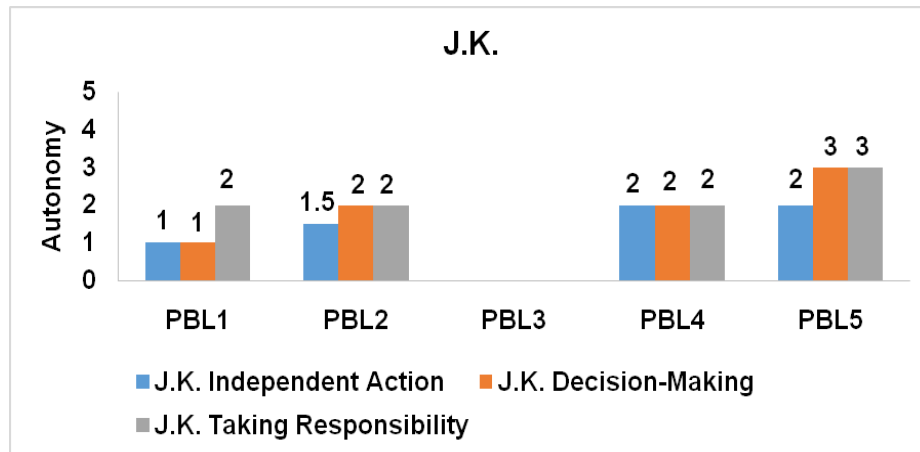


Figure 90; the Student JK's Scores for Each Indicator

Participant JK performed much better towards the end of the course. The indicator, *decision making*, seems to have developed more than the other two indicators. Specifically, it shows a 2 point difference between PBL1 and PBL 5. JK made less progress between PBL 1 and PBL 2, as compared to her classmates. However, the change seems to be more regular and constant than the other participants, despite her absence in PBL 3.

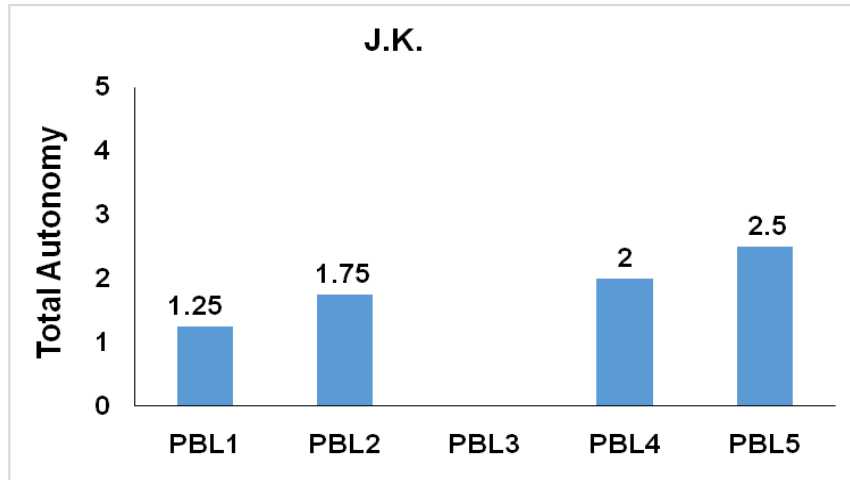


Figure 91; Total Autonomy Average of the Student JK over the 5 tutorials

The conclusions drawn about JK in figure 90 seem more pronounced in this figure. The changes, as stated earlier, are minimal, yet constant and regular with a good rise from PBL 1 to PBL 3. Again, this indicating a positive overall change.

Figures 92 and 93, below, show the results for participant BM 1 over the five PBLs in session 2.

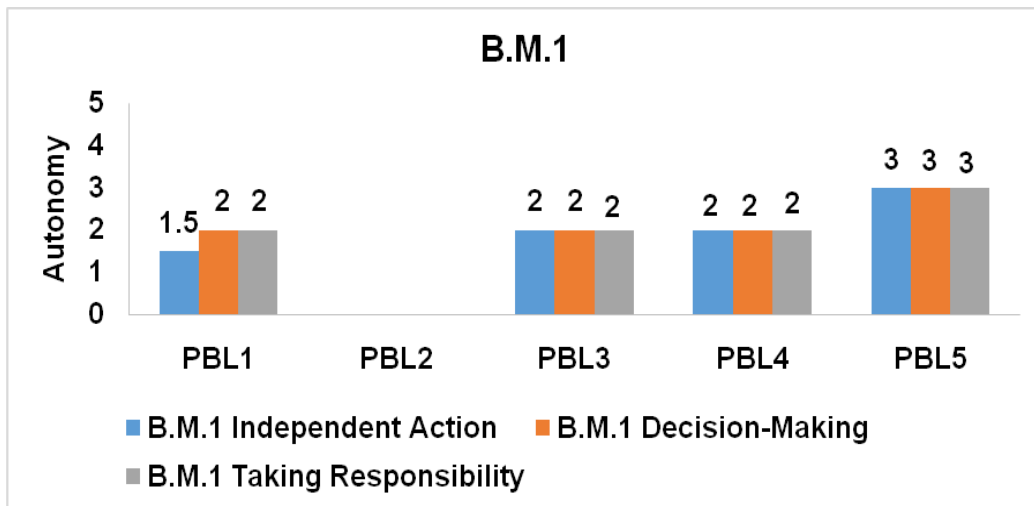


Figure 92; the Student BMI's Scores for Each Indicator

Figure 92 is interesting, as it displays very peculiar changes. BM 1 was absent in PBL 2, but she showed almost no progress at all over the three first PBL tutorials. Stagnation is particularly apparent for the indicators of *decision making* and *taking responsibility*. She scored a slight change in independent action between PBL 1 and PBL

3, but with no progress evidenced in PBL 4. Between PBL 1 and PBL 5, her general progress seems to be greater on the indicator of *independent action*.

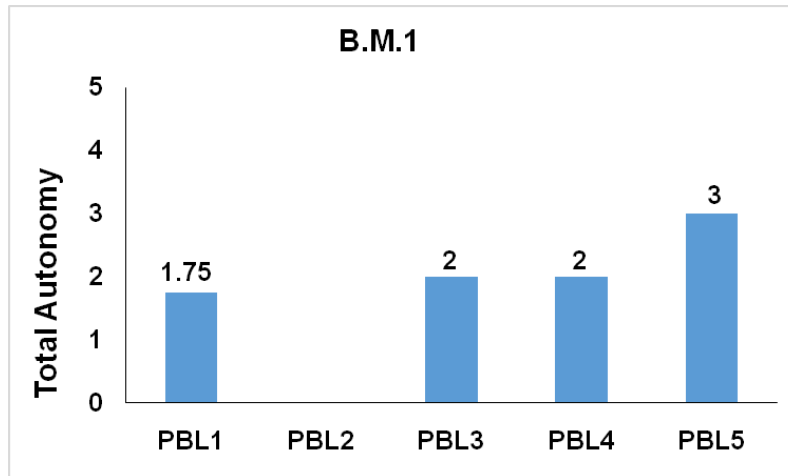


Figure 93; Total Autonomy Average of the Student BM 1 over the 5 tutorials

Figure 93, which displays the average scores of the three autonomy indicators, reflect the same conclusions that were reached in the previous figure for participant BM 1. Overall, and similar to her peers, this participant seems to have made good progress between PBL 1 and PBL 5.

Figures 94 and 95, below, represent participant KM’s scores over the five PBL tutorials in session 2.

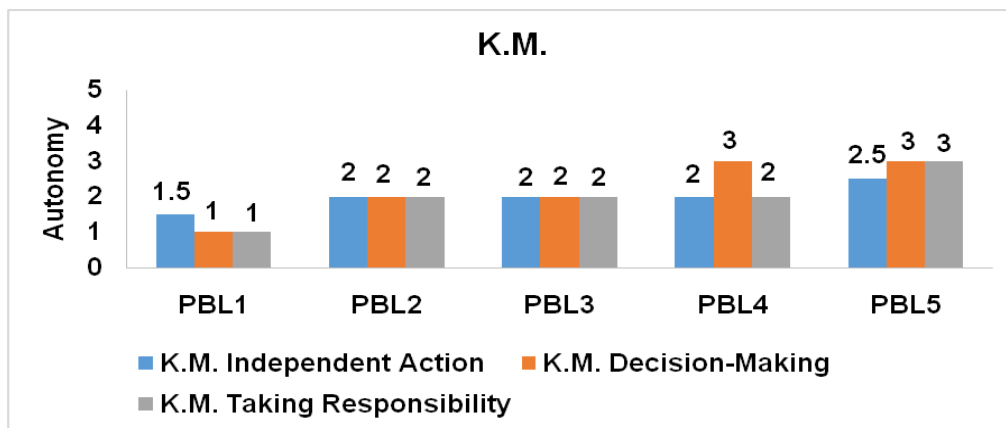


Figure 94; the Student KM’s Scores for Each Indicator

Participant KM seems to have improved on certain indicators more than in others. For example, rises are more frequent and regular for *decision making*. *Independent action* seems to have improved less, as compared to the other indicators, over the five PBL tutorials. KM also demonstrated stagnation in the middle of the course.

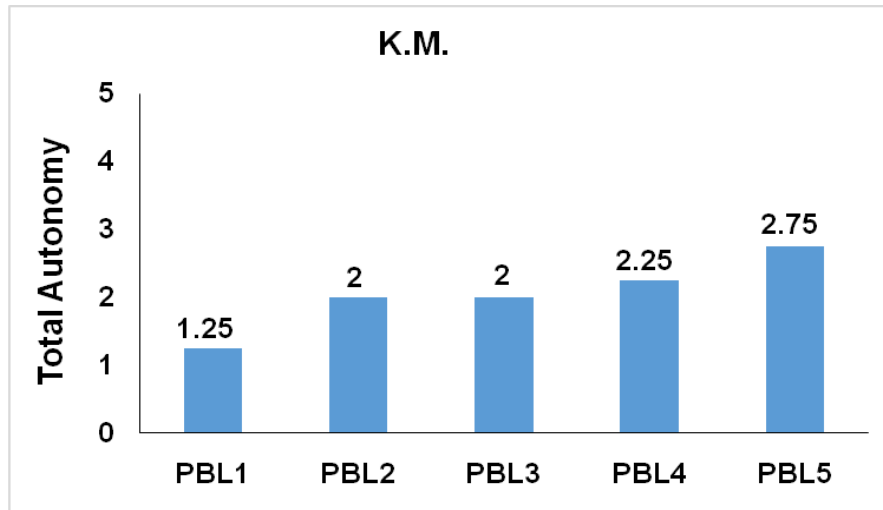


Figure 95; Total Autonomy Average of the Student KM over the 5 tutorials

On average, KM demonstrated a positive change from PBL 1 to PBL 5, and there was little fluctuation in the linearity of her progress. Her changes seem rather slow, but regular, with some stability from PBL 2 to PBL 3.

Figures 96 and 97, below, show participant SM's scores over the five PBL tutorials in the second session.

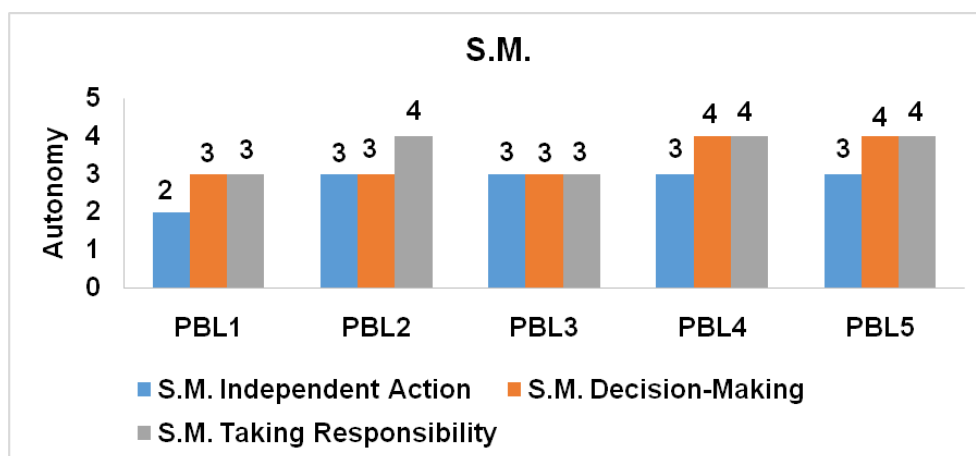


Figure 96; the Student SM's Scores for Each Indicator

The participant's scores at the initial state show that the student possessed some skills and did not have serious problems with learning autonomy like the other participants did. This student showed a similar change for the three indicators from PBL 1 to PBL 5, with an increase of one point for each indicator. However, changes between these PBLs evidenced some fluctuation, such as for the indicator of *taking responsibility*. Apart from a rise from PBL 1 to PBL 2, the *independent action* indicator remained the same over the four subsequent tutorials. *Decision making* did not change over the first three PBL tutorials, but improved in PBL 4 and PBL 5, reaching the highest score at PBL points 4 and 5.

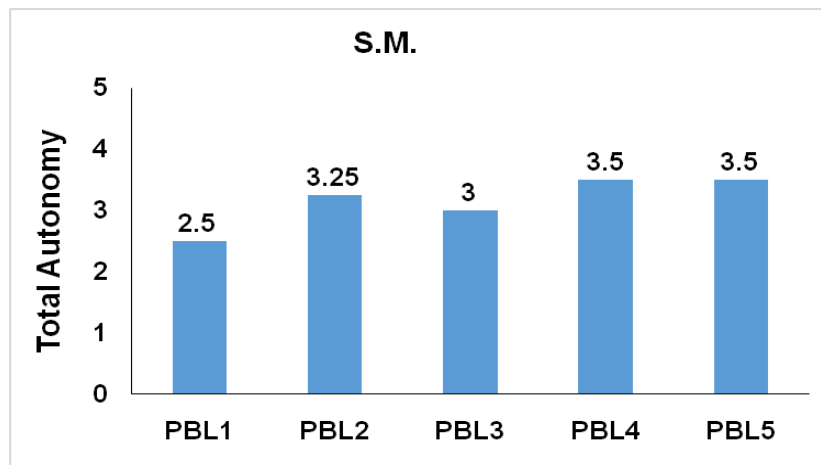


Figure 97; Total Autonomy Average of the Student SM over the 5 tutorials

Figure 96 indicated that the fall in the scores in PBL 3 affected only one indicator, which is *taking responsibility*. This fact is less apparent for the average scores displayed in figure 97, as it simply shows a decrease in PBL 3. Overall, apart from this point of minor decline in, regular improvements were made.

Figures 98 and 99, below, show the results pertaining to RA over the five PBL tutorials in session 2.

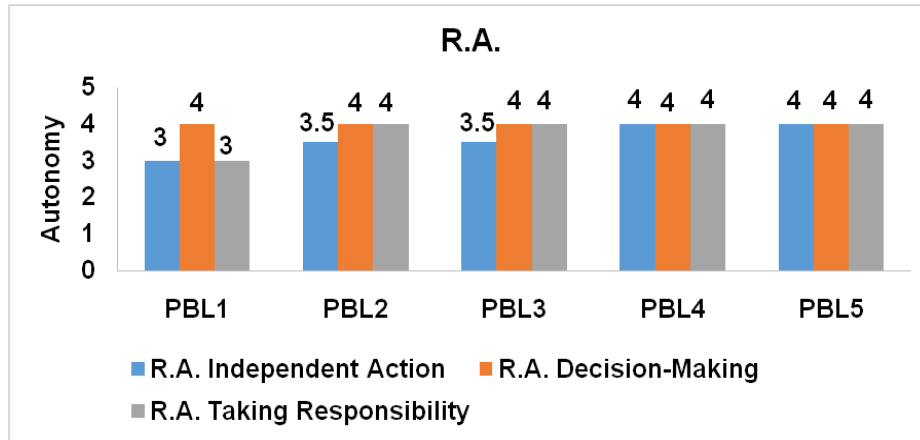


Figure 98; the Student RA's Scores for Each Indicator

This participant has a very good level of language proficiency, as might be inferred from her interview that was conducted with her at the end of the course. She scored very high at the beginning, as she was among the students who could work independently from the very beginning. However, like her peers, the approach is new to her and she scored a little bit lower in the first PBL tutorial, as compared to the subsequent ones. She scored the highest *decision making* score since the first PBL, which was maintained throughout. In the recorded changes, she demonstrated regular positive changes, with some stability in between. Unlike other students, decreases or lower scores were not evident.

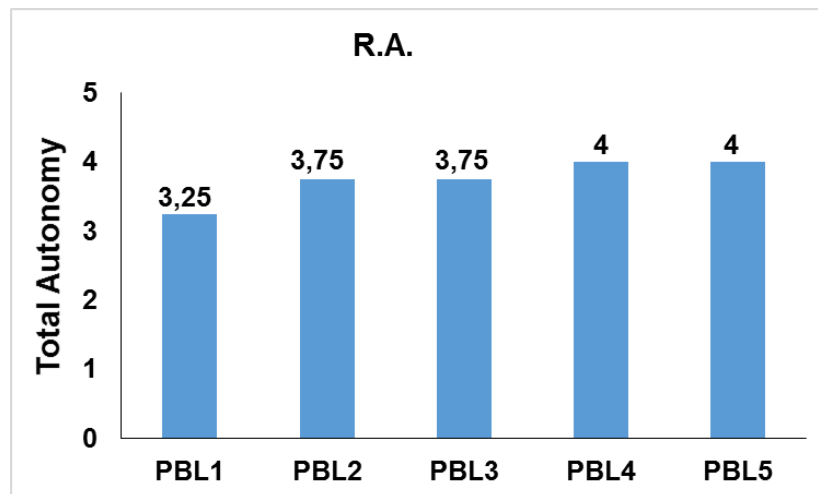


Figure 99; Total Autonomy Average of the Student RA over the 5 tutorials

The same goes for the calculated average of the three indicators, which we can see in figure 99, above. RA's score in the first PBL was high and that is why the progress achieved towards PBL2 seems low. The learner does not seem to have made any progress between PBLs 2 and 3, but unlike other students, she managed to maintain her scores and show certain stability. This stability is also noticeable in PBLs 4 and 5. The changes have been minimal, but the learner scored the highest point and there are still signs of development that may be linked to the impact of the approach on her learning.

Figures 100 and 101, below, represent the participant RK's scores over the five PBL tutorials in the second session.

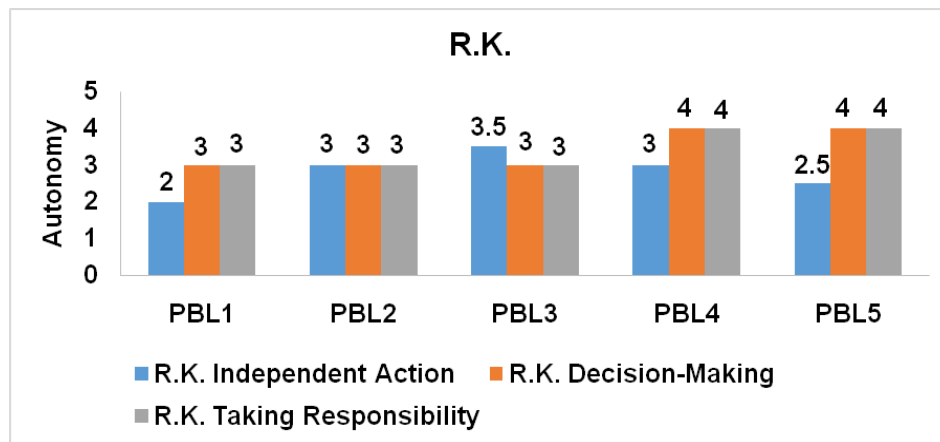


Figure 100; the Student RK 2's Scores for Each Indicator

In the figure above, we can see some fluctuation in the scores of *independent action* indicator marked with rises in PBLs 2 and 3 followed with falls in PBLs 4 and 5. This shows that the participant's performance relating to this indicator had not seen any state of stability. However, changes whether positive or negative can show that learning had been in a dynamic state that might have been followed by other rises if we had more tutorials. Taking responsibility and decision making had seen a state of stagnation over the three first PBLs followed by a rise in PBLs 4 and 5 reaching the highest score on the scheme. These two indicators had been initially high and they witnessed a regular stable rise which remained constant between PBLs 4 and 5.

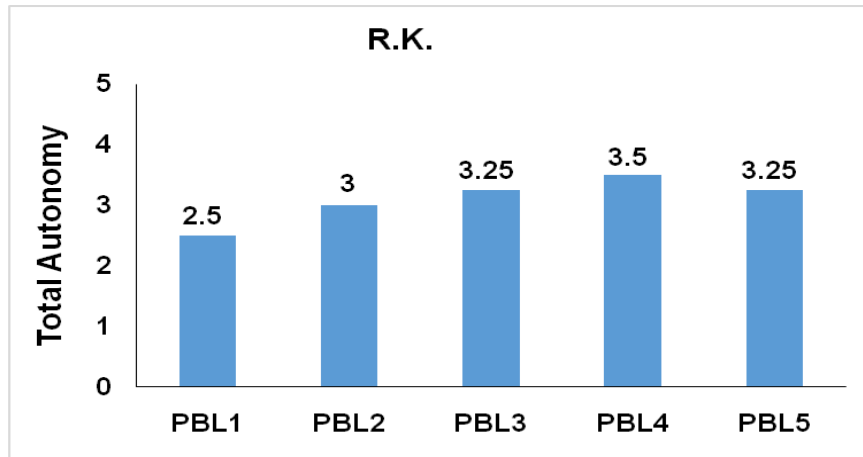


Figure 101; Total Autonomy Average of the Student RK2 over the 5 tutorials

On average, as the figure above shows, participant RK has made regular improvement in learning autonomy. The last PBL tutorial in this chart seems to have regressed, but this is only due to the indicator *independent action* as figure 100 shows, which is again can be attributed to the student's knowledge of the topic and relating language. In general, apart from PBL 5, the chart represents regular rises from PBL 1 and 4 which might indicate a positive impact of the approach on the learner.

Figures 102 and 103 represent the scores of the participant BM 2 over the five PBL tutorials in session 2.

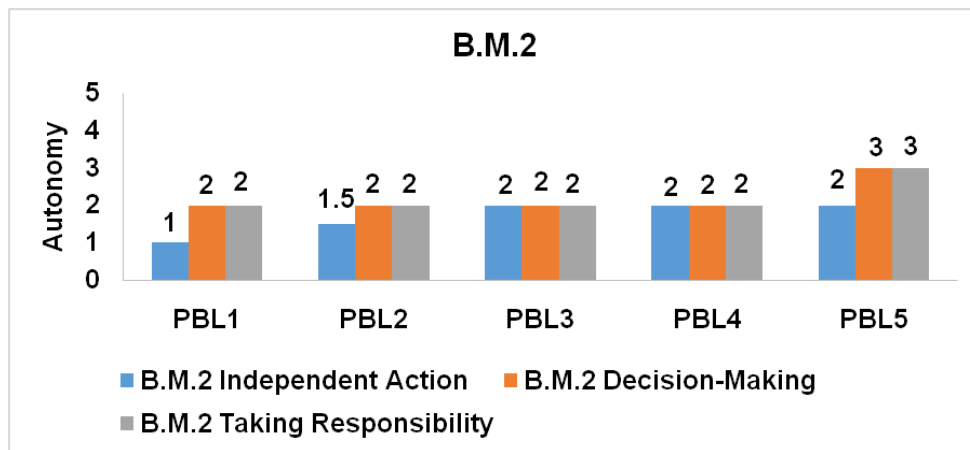


Figure 102; the Student BM 2's Scores for Each Indicator

Figure 102 shows a slow, but constant and regular progress without any regressions in any indicator. The participant did not score high as some did in the first

PBL tutorial, which might indicate problems with learning autonomy particularly for the indicator independent action. What is worth noting, however, is that looking at PBL 1 and 5 we can see a similarity in the development of scores relating to the three indicators making an increase of 1 point for each of them. Taking responsibility and independent action indicators have seen a state of stagnation over the first four PBL tutorials with a sudden rise in these two in PBL 5.

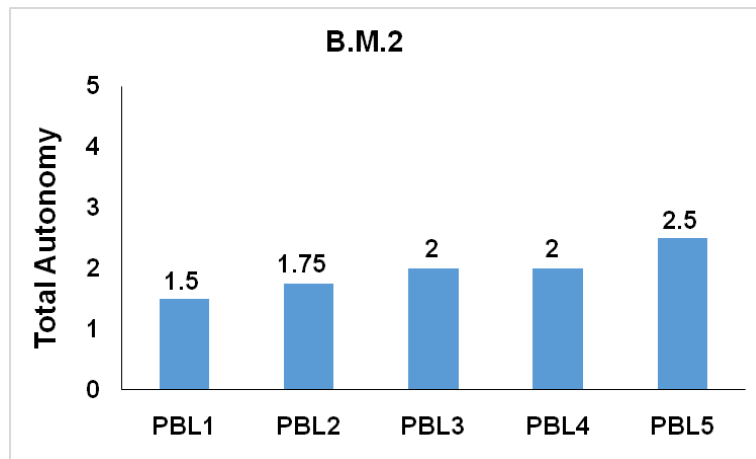


Figure 103; Total Autonomy Average of the Student BM2 over the 5 PBLs

On average, BM 2 seems to have slightly developed her learning autonomy with the rises we can see in the figure above despite some stability between PBL 2 and 3. The change had been slow, but almost regular showing some improvement towards the end.

To conclude, we can say that there was general improvement in the students' behaviors related to autonomy from PBL 1 to PBL 5. However, this change appears inconsistent and non-linear. Eventually, we can say that sometimes learners tend to develop in certain behaviors related to autonomy unevenly. Students did not develop in the same way as well. In the questionnaire many students explained that their lack of knowledge of English hindered them from doing the work properly. These falls and rises we have recorded in this indicator can probably confirm that language aptitude has a great impact on this particular indicator.

Generally, changes were more apparent among students who scored lower in PBL 1 than those who scored higher. For instance, the participant R.A., who is also initially an A+ student in terms of language proficiency, scored high from the beginning as we can

see in figures 98 and 99 and we cannot see significant changes even though she reached the upper score by the end. Some learners improved slowly and steadily, but others, such as in participants DH and RK as in figures 80; 81 and 86; 87 had rapid rises and falls. In general, all the learners showed an improvement between PBL 1 and 2, following which changes became irregular. A few students showed a positive change between PBL 2 and 3, such as RK and BM 2 as in figures 100; 101 and 102; 103. In contrast, the other students either did not show any improvement at all, as they scored the same for PBL tutorials 2 and 3, such as the participants NA, KM, and RA as in figures 84; 85 , 94; 95, and 98; 99. Other students, such as RK and SM in 86; 87 and 100; 101, exhibited a reduction from PBL tutorial 2 to 3.

Looking at the problem-scenario, which relates to diabetes, learners were expected to come up with a solution to help raise awareness in the community. This might have been too challenging, as diabetes is a wide topic and there are many types that are caused or explained by different factors. Across the figures, we can see that generally speaking it is the indicator *independent action* which had seen less stability. Students' initial knowledge about the topic might also have imposed limitations on their work. As already discussed in Chapter 10, knowledge of a topic facilitates the reading of a passage, just as unfamiliarity with a topic can hinder comprehension. As the respondents reported in the questionnaire, their limited knowledge of language hindered them from either understanding the discourse of the texts they found or reporting the information to their classmates in English. This might lead to hypothesizing that there is a correlation between autonomy and language proficiency.

To further investigate all the individual learners' changes, their results were summarized in figure 104 in order to see the average change for all these individuals and to see how changes generally occurred. Initially, because there were selected students who were absent for certain PBLs, Estimation Maximization was used to replace missing values. This was done because different students were absent on different days. If, for example, a poor student was absent on day 1 and a strong student was absent on day 2, the results would be skewed towards day 1 because the poor student is missing from the day. So, an average can certainly be calculated, but this average is not likely to provide a true reflection of the scores if they are not replaced.

However, because of the necessity to ensure that missing values were missing completely at random, Little's MCAR test was computed to test for this. The result was not statistically significant, $\chi^2(15) = 15.01, p = .451$, indicating the missing values appear to be missing completely at random and the appropriateness of proceeding with replacing missing values. These replaced values were used in the subsequent analyses. Below is a discussion of this summary.

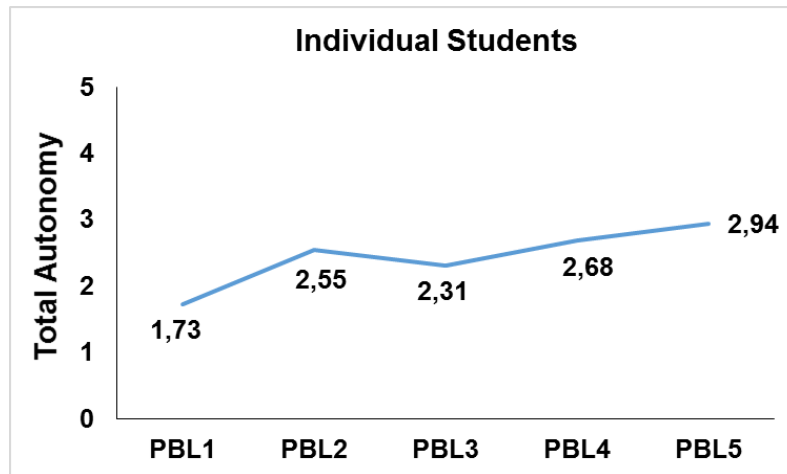


Figure 104; the averages of the individual students for total autonomy in Session 2, PBLs 1-5

Figure 104 provides a cross-student summary of the results from each of the individual charts in which it was reported that, generally, there was a positive change in the autonomy of the students between PBL 1 and 5. There was also a bigger change between PBL 1 and 2 than between 2 and the other tutorials. Changes were sometimes positive, marked by an increase in the line chart, but were sometimes negative, marked by a decrease in the line chart. In the analysis of the individual charts, apart from two students, the others either showed no change at all or scored lower between PBLs 2 and PBL 3.

16.2. Group Observation Results

One should be reminded at this stage that for sessions 1 and 3 for each PBL tutorial the learners were observed in groups and their scores reflect the group work. Behaviors were coded into the three indicators of autonomy just like for the individuals,

but they involved different steps in the PBL. Table 12, below, shows the statements in the observation scheme, relating to each indicator;

<i>Independent Action</i>	<i>Decision Making</i>	<i>Taking Responsibility</i>
1- Students were able to comprehend the problem scenario without help from the tutor.	2- Students were able to set their work plan without help from the tutor.	5- All group members actively participated and shared in all the previous steps.
11- Students were able to present and explain their work to the other groups and to the tutor.	3- Students were able to identify their gaps of knowledge.	12- Students were able to assess their own work.
	4- Students were able to divide the work between the group members to achieve their objectives.	13- Students were able to assess their peers in the other groups and give feedback on other groups' work.
	10- The students were able to put their work together according to their plan.	14- All group members participated equally and shared in all the previous steps.

Table 15; Autonomy indicators in session 1 and 3 PBL tutorials and related behaviors

As we can see in this table, the behaviors are associated with the group work and therefore learners were rated in their respective groups; the Doctors and the Sining Star.

Table 15, below, shows the scores of the two groups in relation to the three indicators of autonomy across all five of the PBL tutorials. Figures 105;106 and 106; 107 also illustrate these scores. These figures display each group scores per indicator, and then the average of total autonomy for each group.

	Shining Stars				
	Independent Action	Decision-Making	Taking Responsibility		
PBL1	2.5	2.25	1.5	7	3
PBL2	3	2.75	2.25	8	4.5
PBL3	2.5	3	2.5	9	5
PBL4	3	3	2.75	9	5.5
PBL5	3	3.25	2.75	9.75	5.5
	Doctors				
	Independent Action	Decision-Making	Taking Responsibility		
PBL1	2.5	2.25	2	6.75	4
PBL2	3.5	3.5	2.25	11	4.5
PBL3	3.5	2.75	2.5	8	5
PBL4	4	3.75	3	11	6
PBL5	3.5	3.25	2.75	11	5.5

Table 16; Independent Samples Test; Group Statistics; Group results per indicator

Figure 105, below, represents the learners' results in the Shining Star Group per indicator of autonomy.

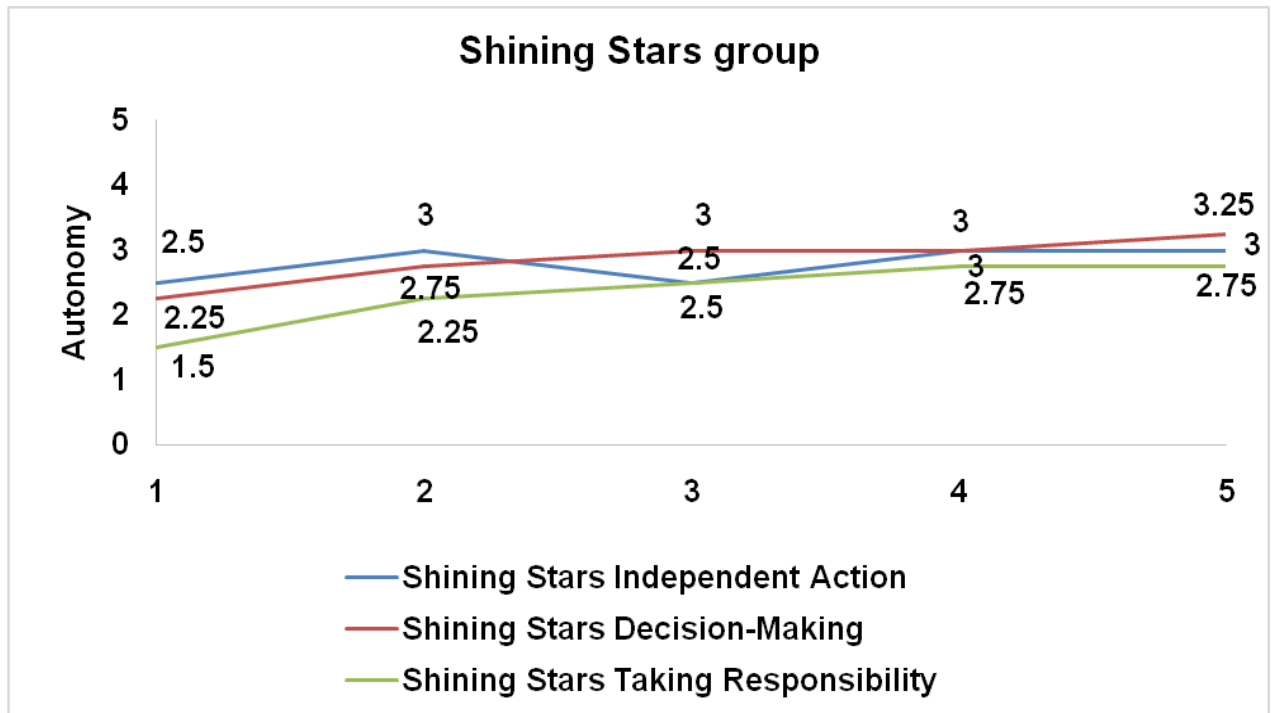


Figure 105; Shining Stars Group Results of Autonomy per Indicator

Similar to the individual scores, we can notice that the most fluctuating indicator with more rises and falls is the indicator *independent action*. *Taking responsibility* and *decision making* have seen more regular and constant progress with no falls at all. This again explains that the rises and falls we can see in the averages are due to this particular indicator, *independent action*, scores.

Figure 105, below, represents an average of the three indicators showing total autonomy score across the five points for the Shining Star Group.

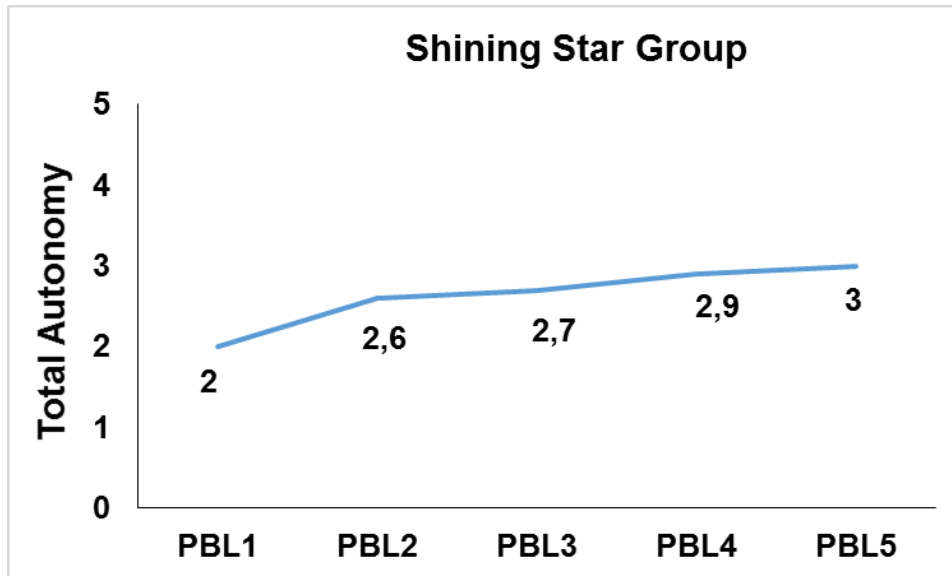


Figure 105; Shining Star Group Average for Total Autonomy

As figure 105 indicates, the group seemed to develop autonomy over the PBL tutorial period. It was observed that there was a bigger improvement from PBL 1 to PBL 2, as compared to the differences from PBL 2 to PBL5. However, the group generally had a gradual improvement in total autonomy over the 4 subsequent PBLs. The participants faced many problems in PBL 1, as it is explained in Chapter 15, in the results of the questionnaire, and that might be why they generally scored low. Following PBL1, they received a lot of feedback and coaching (See Section 16.6). This might have impacted their results in PBL2, as they had become more familiar with the approach and eventually scored better.

Shining Star Group members have made, as we can see in figure 106, slow, but regular changes. This regularity is not clear in figure 105, as the *independent action* indicator kept fluctuating. However, stability is more noticeable when an average of these indicators is calculated. In the individual charts we have seen that some students scored lower in PBLs 2 than 3 and others retained their previously achieved level, with a small number who recorded an increase. This also seems to be applicable to the group. Because the group members work together, the scores indicate the group's general achievement and strong students, or students who maintained the scores they previously attained, might have helped the group preserve its score. The line chart, however, has no

regression or falls on it, which can confirm that the group was moving slowly onwards with some stability and might indicate a positive change. Between PBL 2 and 5, changes were rather regular for most of learners which also resembles what is called ‘stabilization of the system’ in Systemics. Stabilization as it was explained shows that the feedback was effective and the goal was achieved.

Figure 107, below, represents the learners’ results in the Doctors Group per indicator of autonomy.

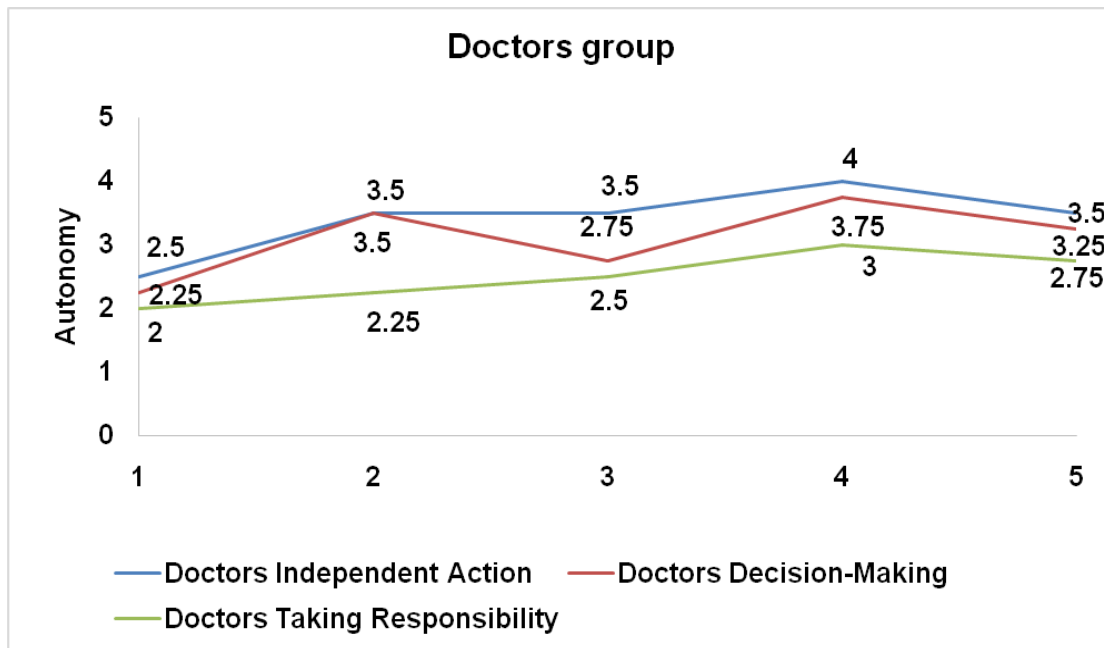


Figure 107; Doctors Group Results of Autonomy per Indicator

For the Doctors Group fluctuation is more apparent. However, *decision making* indicator has seen more irregularity than the other two indicators. This indicator has particularly seen regression in PBL 3, where learners were undecided about what type of diabetes they had to work on and how to approach the topic.

Figure 108, below, represents an average of the three indicators showing total autonomy score across the five points for the Doctors Group.

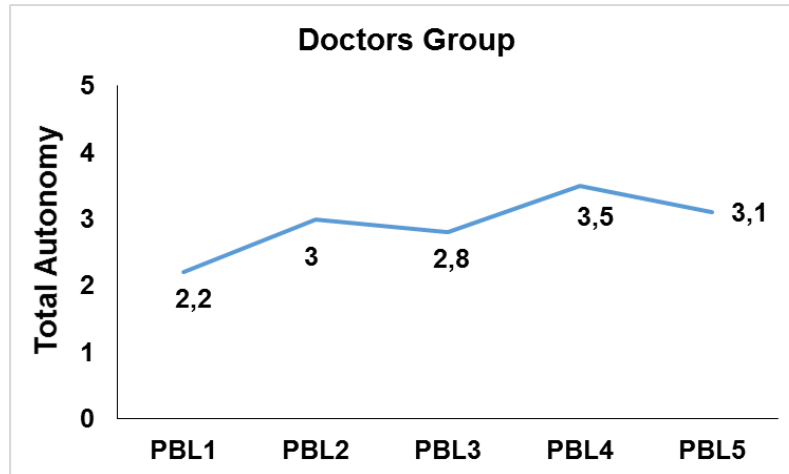


Figure 108; *Group Average for Total Autonomy “the Doctors”*

As figure 108 indicates, the Doctors Group seemed to develop their levels of autonomy, as the group increased from 2.2 to 3.1 points during the course of the PBL sessions. Similar to the ‘Shining Star Group’, there was a bigger improvement from PBL 1 to PBL 2, as compared to the differences from PBL 2 to PBL5. However, it is noted that the results between PBL 3 and 5 show non-linearity in the learners’ development of total autonomy. This positive and negative change in learners’ development or a change occurring in a system can be justified by DST. From PBL tutorial 1 to 2, it appears a ‘the snow ball effect’ has occurred. DST states that a complex system is marked by both bumps and holes or ‘peaks and valleys’ as dictated by non-linearity which can show that dynamism exists and learning is taking place. In figures 107; 108, the Doctors Group had witnessed some regression and progression over the course of the PBL sessions. If we assume that stability is a better sign for progress, then we can infer from these results that the Doctors Group need more help despite their overall progress.

It may be concluded that the Shining Star Group exhibited greater stability (see figures 105; 106), while development was less stable and fluctuated more in the Doctors Group. This situation might indicate that the former group benefited more from the

course, at least according to a Systemics perspective. Donnadieu et al. (2003) explained that stability indicates that the goal has been achieved.

La rétroaction agit en sens opposé de l'écart à l'équilibre de la variable de sortie (ce qui suppose d'avoir fixé préalablement le niveau recherché pour cet équilibre, ce que l'on appelle en théorie de la régulation la valeur de consigne). Si la rétroaction se montre efficace, il y a stabilisation du système qui se montre comme étant finalisé, c'est-à-dire tendu vers la réalisation d'un but (p.5).

Despite the fact that there is not complete consistency for the Shining Star group, which is demonstrated in small increases when moving from some PBLs to others, there were no decreases in scores.

16. 3. Comparison between Individual and Group Results

Because the number of items that were measured among the groups and the individuals differed, the scores were divided by the number of items. For instance, for total autonomy for individual observations, there were 4 items. According to this, the maximum score that is possible is 4 (i.e., the highest rating for any 1 item). So, the participants' scores were divided by 4 to obtain a score. This was done for the group/s as well as each component (e.g., decision making) for each individual and the grouped observations (again because the number of items differed). The importance of this is that a direct comparison can be made between the individual and group scores, individual and individual average scores can be compared, and a particular individual's scores can be compared with group scores.

	Combined Group Average		
	Independent Action	Decision-Making	Taking Responsibility
PBL1	2.5	2.25	1.75
PBL2	3.25	3.13	2.25
PBL3	3	2.88	2.5
PBL4	3.5	3.38	2.88
PBL5	3.25	3.25	2.75

Table 17; Combined Group average

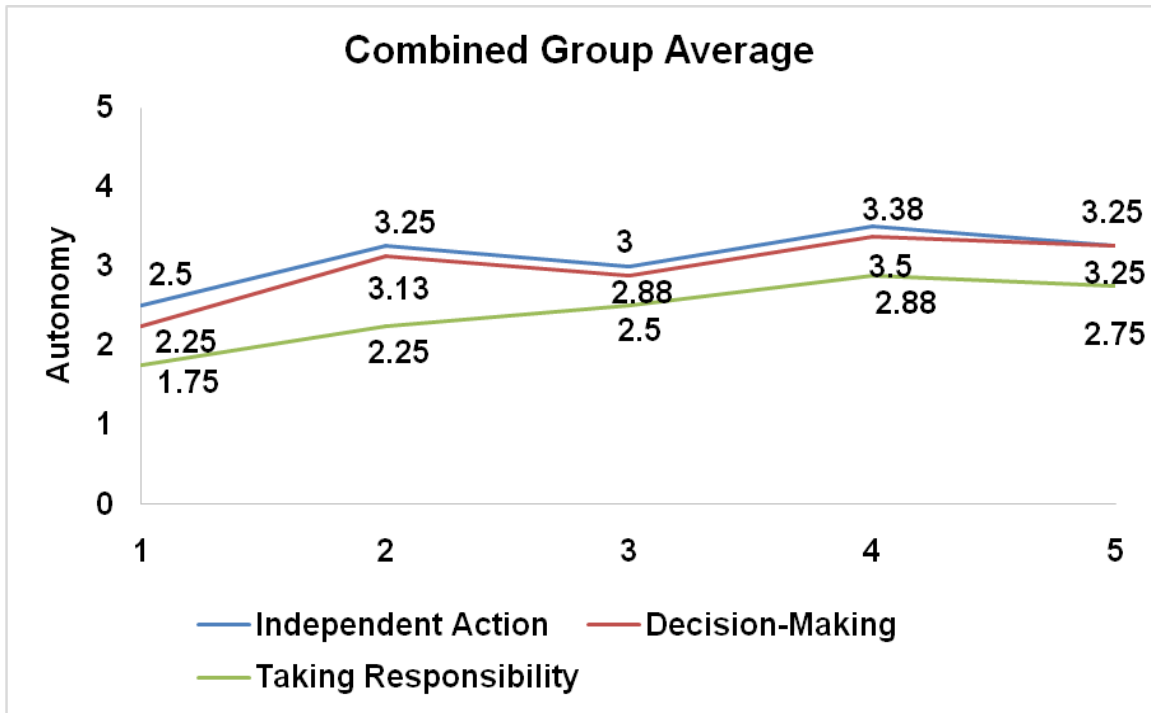


Figure 109; Combined Group Average

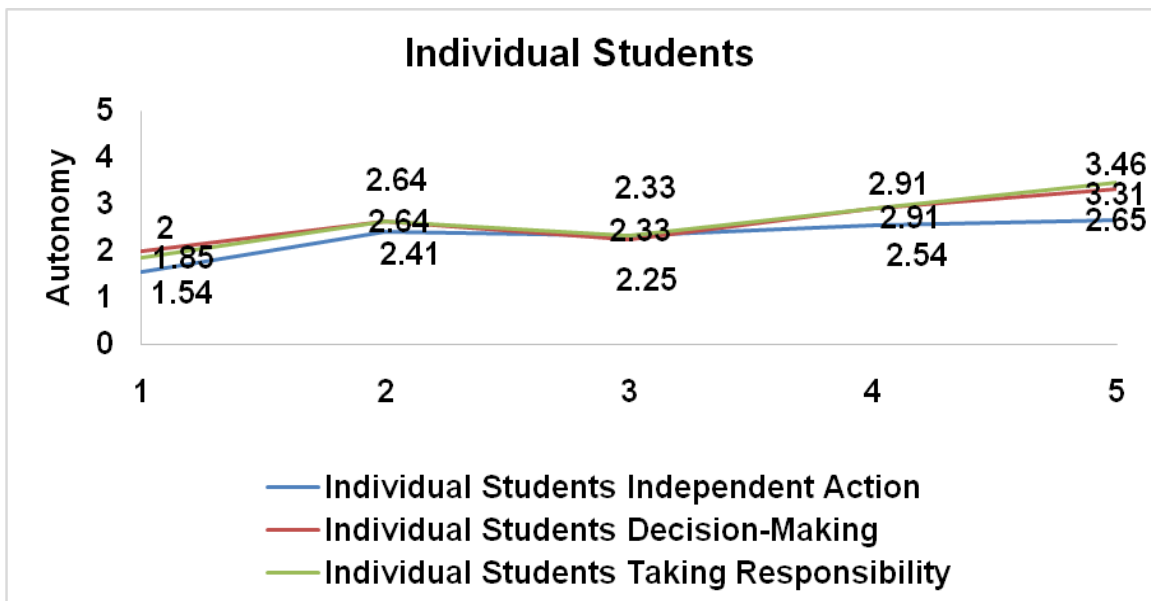


Figure 110; Individual students Results per Indicator of Autonomy

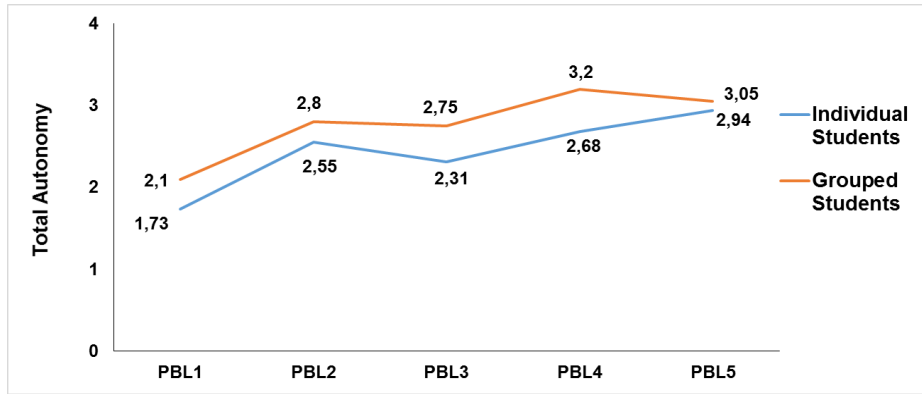


Figure 111; Line graph comparing Individual and Grouped Students for Total Autonomy

Figure 111 shows the differences in development between the results for the individual students across the five PBLs and the students in groups across the five PBLs. The grouped students obtained a higher average point (2.1) as compared to the individual students (1.73) in PBL 1. However, the individual students made a slightly larger improvement from PBL1 to PBL2, specifically moving from 1.73 to 2.55. Apart from a decline in PBL 3, from 2,55 to 2.31, the individual students showed consistent improvement in PBL 4 and PBL5 compared to the slight drop scored by grouped students from 3.2 in PBL4 to 3.05 in PBL5. Overall, the graph clearly depicts that both individual students and grouped students improved in Total Autonomy from PBL1 to PBL 5 and that the improvements for both groups was marked with ‘peaks and valleys’. Overall, the scores indicate that the grouped students outperformed the individual learners. This interpretation can be backed up by the results achieved through the t-test reported below.

A *t*-test was conducted to determine whether there was a difference in autonomy between the individual students or the grouped students. A total score was obtained for each student across the five PBL sessions. Figure 112 indicates a total score was obtained for each student across the five PBL sessions.

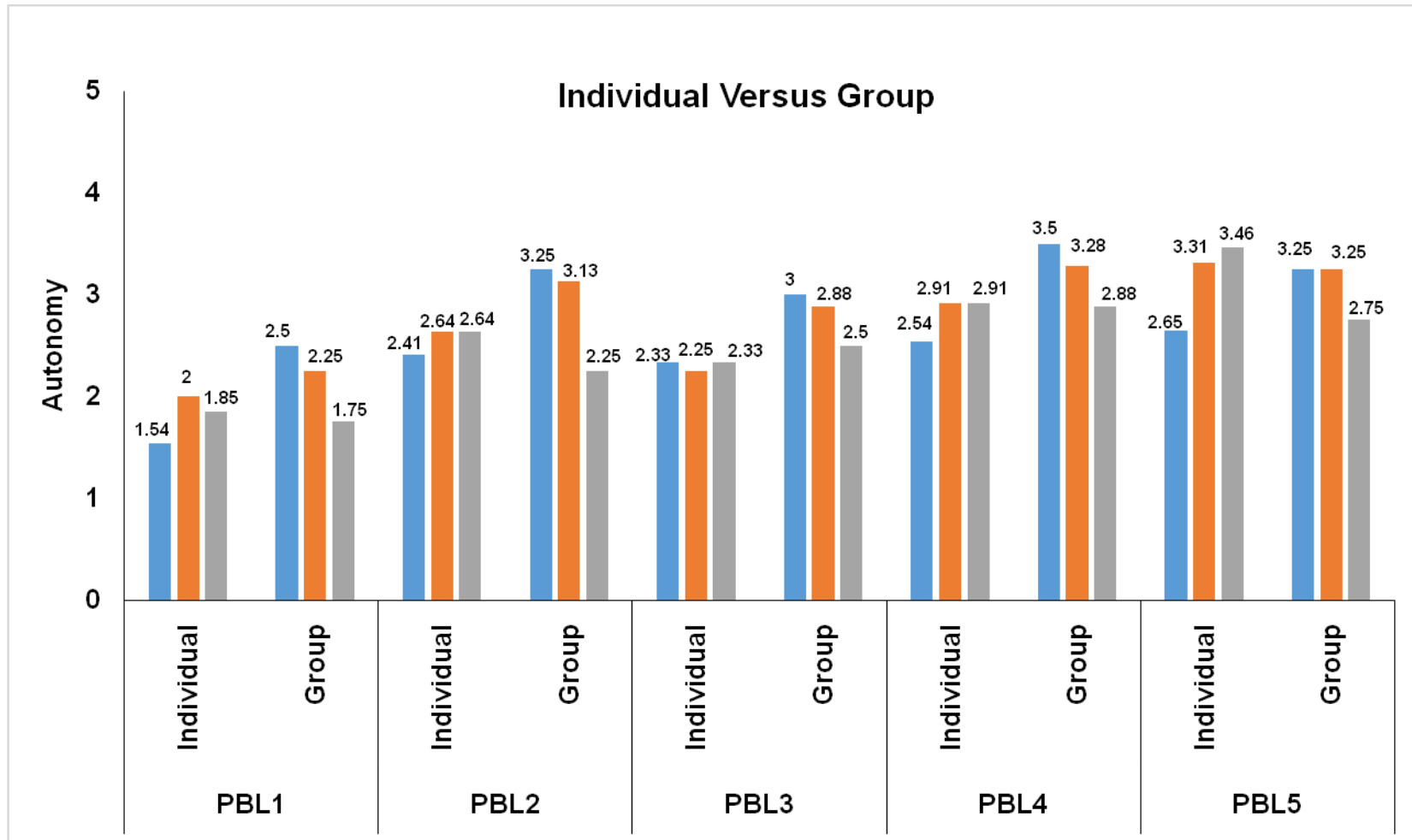


Figure 112; Individual versus Group Results

Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Total_Autonomy_PBL_1_to_5	35.175	.000	2.252	24	.034	1.85692	.82469	.15484	3.55901
Equal variances assumed									
Equal variances not assumed			2.252	12.000	.044	1.85692	.82469	.06007	3.65378

Table 18; Levene's Test for Equality of Variance

Subsequently, the individual and group tutorial session students were compared to determine whether the grouped students performed better than the individual students or not. It is important to note here that the grouped students were rated as a group, so their values are the same and hence no standard deviation was recorded. Levene's test of equality of variances was statistically significant, $F = 35.18$, $p < .001$, suggesting the homogeneity assumption was not met. Therefore, equality of variances was not assumed. The t -test result was statistically significant, $t(24) = 2.25$, $p = .044$. That is, the individual students ($M = 12.04$, $SD = 2.97$) scores were lower than the grouped students ($M = 13.90$, $SD = 0.00$), indicating that the PBL sessions appear to be more beneficial for students in groups as opposed to individuals.

	Individual Students			Group		
	Independent Action (Individual Students)	Decision-Making (Individual Students)	Taking Responsibility (Individual Students)	Independent Action (Group Students)	Decision-Making (Group Students)	Taking Responsibility (Group Students)
PBL1	1.54	2	1.85	2.5	2.25	1.75
PBL2	2.41	2.64	2.64	3.25	3.13	2.25
PBL3	2.33	2.25	2.33	3	2.88	2.5
PBL4	2.54	2.91	2.91	3.5	3.38	2.88
PBL5	2.65	3.31	3.46	3.25	3.25	2.75

Table 19; Individual students versus Group Students Scores over the 5 PBL tutorials

	PBL1		PBL2		PBL3		PBL4		PBL5	
	Individual	Group	Individual	Group	Individual	Group	Individual	Group	Individual	Group
Independent Action	1.54	2.5	2.41	3.25	2.33	3	2.54	3.5	2.65	3.25
Decision-Making	2	2.25	2.64	3.13	2.25	2.88	2.91	3.28	3.31	3.25
Taking Responsibility	1.85	1.75	2.64	2.25	2.33	2.5	2.91	2.88	3.46	2.75

Table 20; Individual students versus Group Students Scores over the 5 PBL tutorials

A pairwise comparison was conducted to determine whether the students' (individual and group combined) performance levels increased from PBL 1 to PBL 5. The result was statistically significant, $t(25) = -21.26, p < .001$. Specifically, the students scored higher at PBL 5 ($M = 2.99, SD = 0.31$) than they did at PBL 1 ($M = 1.92, SD = 0.52$), indicating that there was a tendency for the students to improve their levels of autonomy over the course of the PBL sessions.

This might reflect the peer learning that appeared to occur during the course, as learners explained that their classmates helped them to better understand and do their work when they were placed in groups. This result is in harmony with what has been reported in the literature; PBL leads to co-operative learning.

16.4. Students' Overall Learning Autonomy Development

In order to gain deeper insight into how learners developed, and to report achievements and constraints, we will consider the results we came to, through the field notes. Figure 113, below, shows participants' behaviors associated with passive learning, as well as its counterpart, independent learning. To facilitate the reading of this figure, the red color was used with notes referring to passive learning and the green color was used to indicate independent learning.

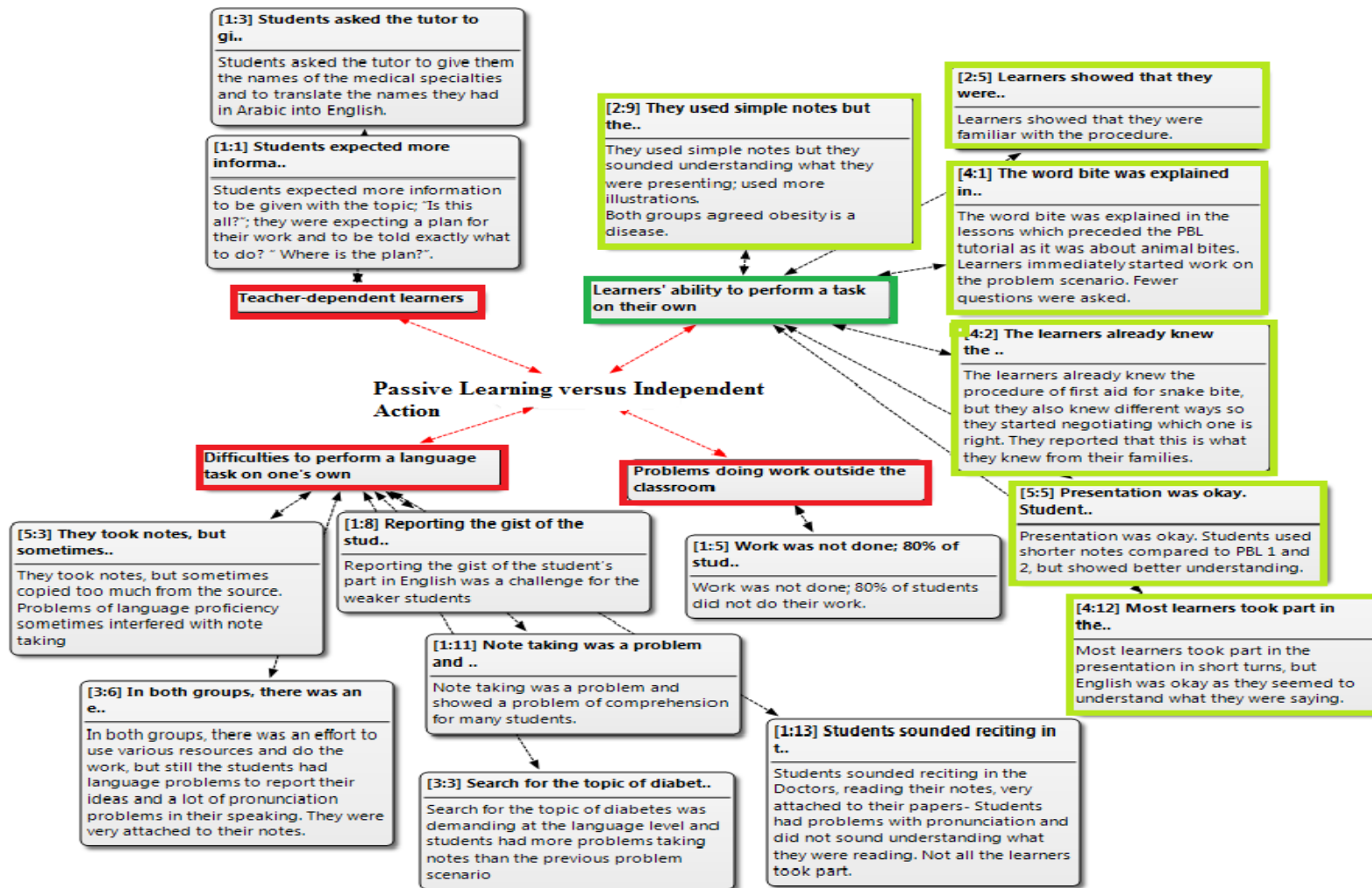


Figure 113; Passive Learning versus Independent Action

Notes 1:1 and 1:3, taken in the first PBL tutorial, mark the very beginning of the students' experience with PBL. The learners were surprised to have a one-sentence-topic to read, analyze and 'solve'. Students faced difficulties working on the first problem scenario, which is evidenced in the following: *They expected more information to be given with the topic; "Is this all?"; "Where is the plan?"; they were expecting to be provided with a plan for their work and to be told exactly what to do.* These behaviors reflect the way they had been trained to engage with material and tasks. In their regular classes, they are not trained to work with a topic and initiate or develop their own plans. These notes reflect students' answers to the questionnaire in which all the learners reported that they did not know what to do. They also provide some explanations to the scores of the students in PBL 1. It was noted by the observer that "*students asked the tutor to give them the names of the medical specialties and to translate the names they had in Arabic into English.*" Students are used to getting the information they need from the teacher. However, here they were told to try to determine, on their own, what medical specialties exist and to find the English terms for those they wrote in Arabic. Note 1:5 describes what happened after the first session regarding 'homework' where learners generally did nothing to get ready to the next session. This situation corresponds to the students' attitudes towards homework described in the research context. Similarly, in the needs analysis, teachers pointed out that all learning in L2 took place in the classroom. This factor had a big impact on the research procedure.

Notes 1:8; 1:11, and 1:13 show that problems with language proficiency impeded learners from doing certain tasks on their own, such as note taking, summarizing information, and presenting their work. The presentations in the first PBL tutorial sounded like recitations in which the learners tended to read information they seemed to have rehearsed previously. They made many pronunciation mistakes and had problems with intonation, which showed that some group members did not really understand what they were saying. In a context where the skill of speaking may be overlooked, however, this does not seem to be unusual.

Language problems persisted and were noted over many PBL tutorials, and they were particularly more apparent in PBLs 3 and 5 where problem scenarios were more challenging and students seemed to have less knowledge about the topics (see notes 3:3, 3:6, and 5:5). Note 3:3 provides an indication that learners had difficulty searching and selecting the right information

about the topic of diabetes, which seemed to be challenging. Note 3:6 tells suggests that learners had problems with speaking as a skill during their presentations. These notes may explain why students in both groups did not perform well on the PBL 3 task. This was also illustrated in the observation charts collected through the observation scheme. Note 5:5 shows that learners had problems with taking notes about first aid for food poisoning. Again, language proficiency appears to interfere with students' autonomous learning. Here maybe we can refer to ZPD and students' learning potentials. Perhaps, a re-assessment needs to be conducted about the difficulty of the problem-scenarios that are designed for these students in this course. These notes can also explain the reasons behind the 'falls' seen in learners' behaviors, as indicated in the results of the observation scheme.

In relation to the fourth code in Figure 98, *learners' ability to work on their own*, the data suggests other facets of the situation in which students were able to perform certain tasks on their own. These behaviors were noted in PBL 2, 4, and 5. In PBL 2, learners did not ask for more information and seemed to be more familiar with the procedure. Based on the notes generated in PBL 1, the students were directed to take shorter notes that they could somehow reuse in their work, which they did. Similarly, in PBL 4, it was noted that learners did not ask for more information and seemed to know what they were expected to do. Presentations also seemed to have improved where all the learners took part in short turns and seemed to be more self-confident. They made fewer mistakes as they used short notes, which they seemed to understand. In PBL 5, students had some difficulties selecting information and note taking, but they managed to use various resources and perform well during the speaking-based component, presentations.

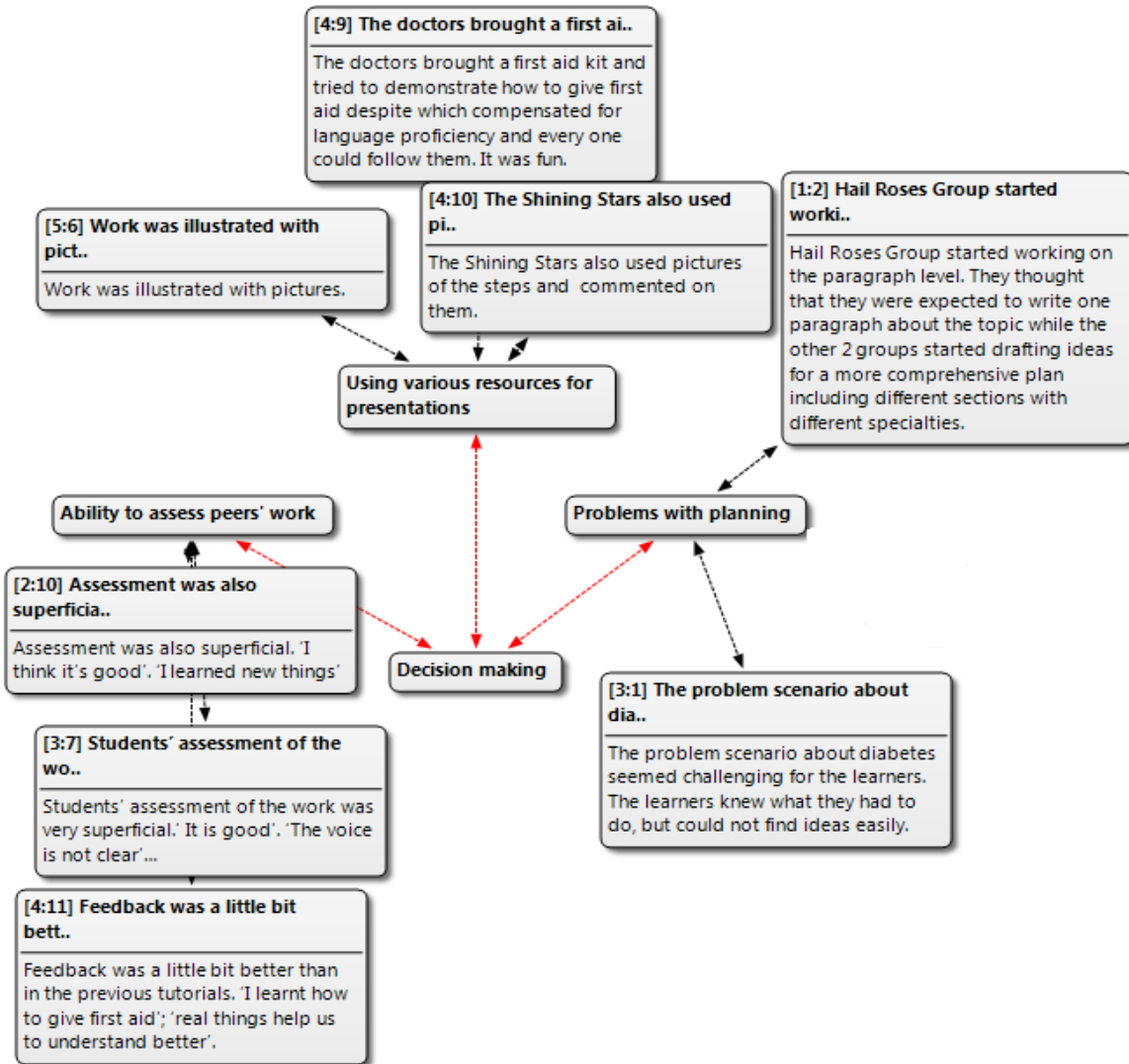


Figure 114; Decision Making

Figure 114 focuses on the students' behavior related to *decision making*, such as setting a plan, the ability to assess work, and the selection and use of relevant resources and materials. Planning was a problem in the first PBL tutorial. Learners were teacher dependent, as outlined in the following observational note: *"The tutor explained to them that they can come up with their own suggestions and that different plans were welcome."* Note 1:2 shows that Hail Roses Group started working on the paragraph level before even working on a plan. The observer noted that *"They thought that they were expected to write one paragraph about the topic while the other 2 groups started drafting ideas for a more comprehensive plan including different sections with different specialties."* The problem is that knowing about specialties was necessary, but it

was not enough. The students were directed to select a specialty and say why they wanted to specialize in it. In PBL 3, the learners also had a problem to set a plan, but for a different reason. In note 3:1, it is evident that although the learners did not ask many questions and looked familiar with the procedure, they were not able to write a plan. The reason for this is a lack of knowledge on the topic, and the learners explained that they did not know much. Eventually, they were allowed to do their search on the Internet so that they could set a final plan.

Regarding students' ability to assess their peers' work, three notes were taken in PBL 2, 3, and 4, as figure 99 demonstrates. Notes 2:10 and 3:7 illustrate the learners' comments about their classmates' work when they finished their presentations. The learners did not seem to be able to find strengths and weaknesses in the work. They typically responded by saying 'it was good' or 'the sound was not clear', but most of the students did not say anything. The note about PBL 4 seemed a to provide an improvement. The students could see that using real things (in this case the first aid kit and role-playing) helps explaining the procedure of first aid. However, not everyone provided a response. This is confirmed in notes 4:9, 4:10, and 5:6, which were taken in PBL tutorials 4 and 5. The notes report that students used relevant and varied resources, such as pictures, to illustrate their work and positively impacted their presentations.

Another indicator of learning autonomy, taking responsibility, is discussed below.

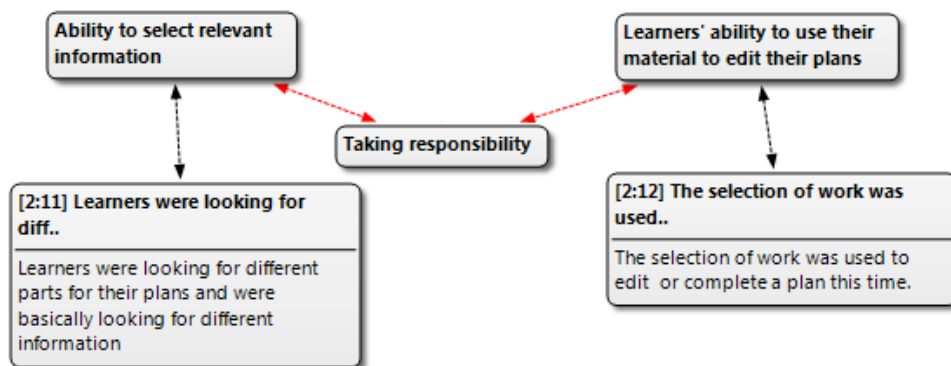


Figure 115; Taking responsibility

For this code, only two notes were taken in PBL2. Specifically, the observation seemed to be much more successful than in PBL1. In the observation data collected through the scheme, the change the students made through 'the snow ball effect' were identified. This is a further indication that the learners could use the information they found, not only to complete their work, but to make adjustments to their original plans.

16.5. Students' Scaffolding over the Course

Figure 114, below, represents examples of the kind of help and coaching the students were provided with over the five PBLs and particularly as a feedback on the problems they faced in PBL1. This help is required for learners' development, and we made sure it was provided according to the notion of *étayage* and *desétayage* as presented by Meirieu (1998, in Tardieu, 2008) as discussed in Chapter 8.

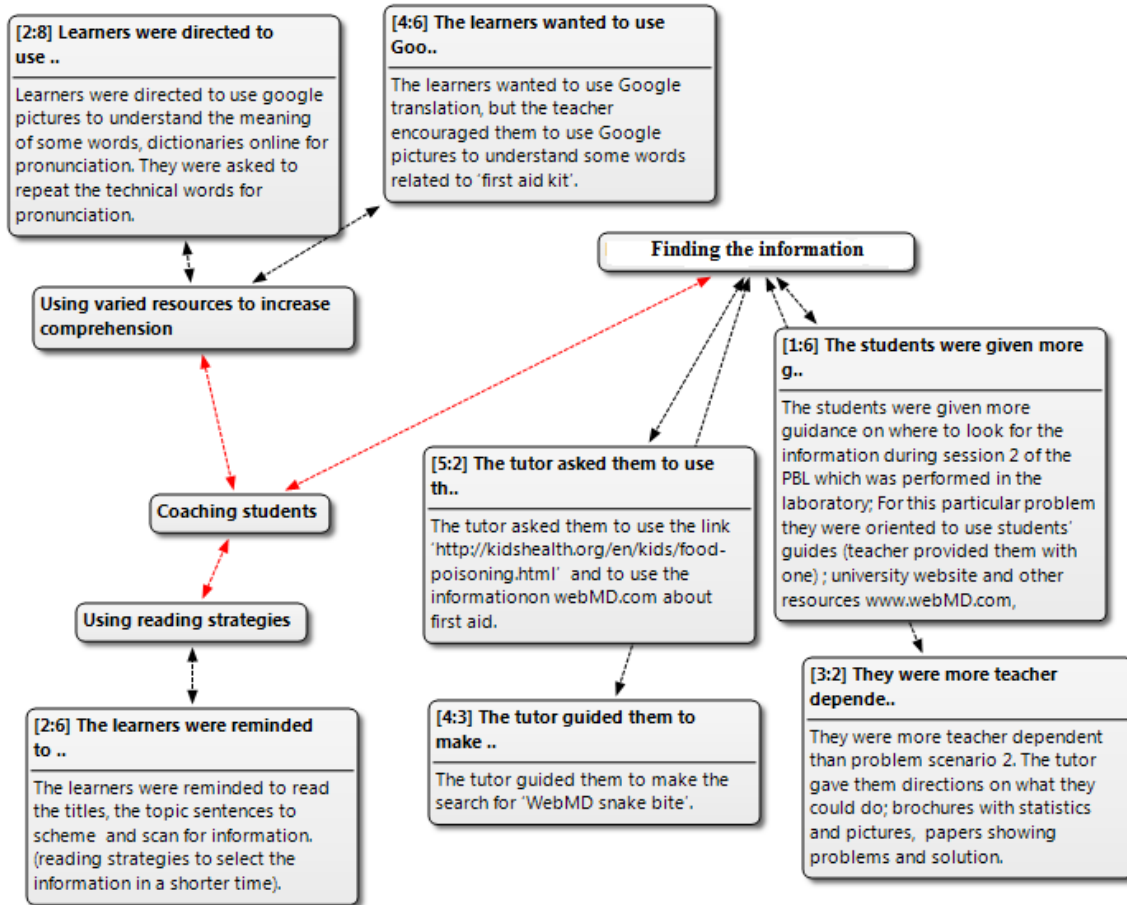


Figure 116; Coaching students

Scaffolding, as outlined in the section about autonomy in Chapter 8, is a natural step for students to gain autonomy. However, scaffolding should decrease as learners are able to take over tasks they were not able to do previously. Figures 112, 113, and 114 outlined the learners' performance in relation to the three indicators of autonomy – independent action, decision making and taking responsibility – and how their behaviors seemed to have changed over the five PBL tutorials. The improvements identified were largely based on scaffolding and mentorship. Figure 116, above, shows how learners were guided to perform better and work

more independently. This figure explains how the students were helped over the duration of the course to improve their learning.

Learners were directed to use reading strategies in order to read faster and more efficiently, as indicated in note 2:6. They were told to use titles and skimming strategies to select the right material. They were encouraged to scan for details they needed and not to concern themselves with information that they did not need.

To gain time and use resources that are easier in terms of language, the tutor provided the students (on several occasions) with website addresses where they could find information, such as www.webMD.com and www.kidshealth.org. The first website usually contains short reviews about different topics presented in a simple English format. In the second source, the students have the option of reading and listening to the passage at the same time, and the level of English is also graded in a simple way. In addition, there are videos and illustrations that relate to the topic as well as quizzes to test comprehension. Over the course, learners were also encouraged to use online dictionaries and Google pictures to determine what a word meant. They were also provided information about Google translate issues.

16.6. Other Findings

Figure 115, below, shows other results that were obtained through field notes, which should complete the picture and identify other kinds of impact the PBL methodology had on learners of English for Medical Academic Purposes.

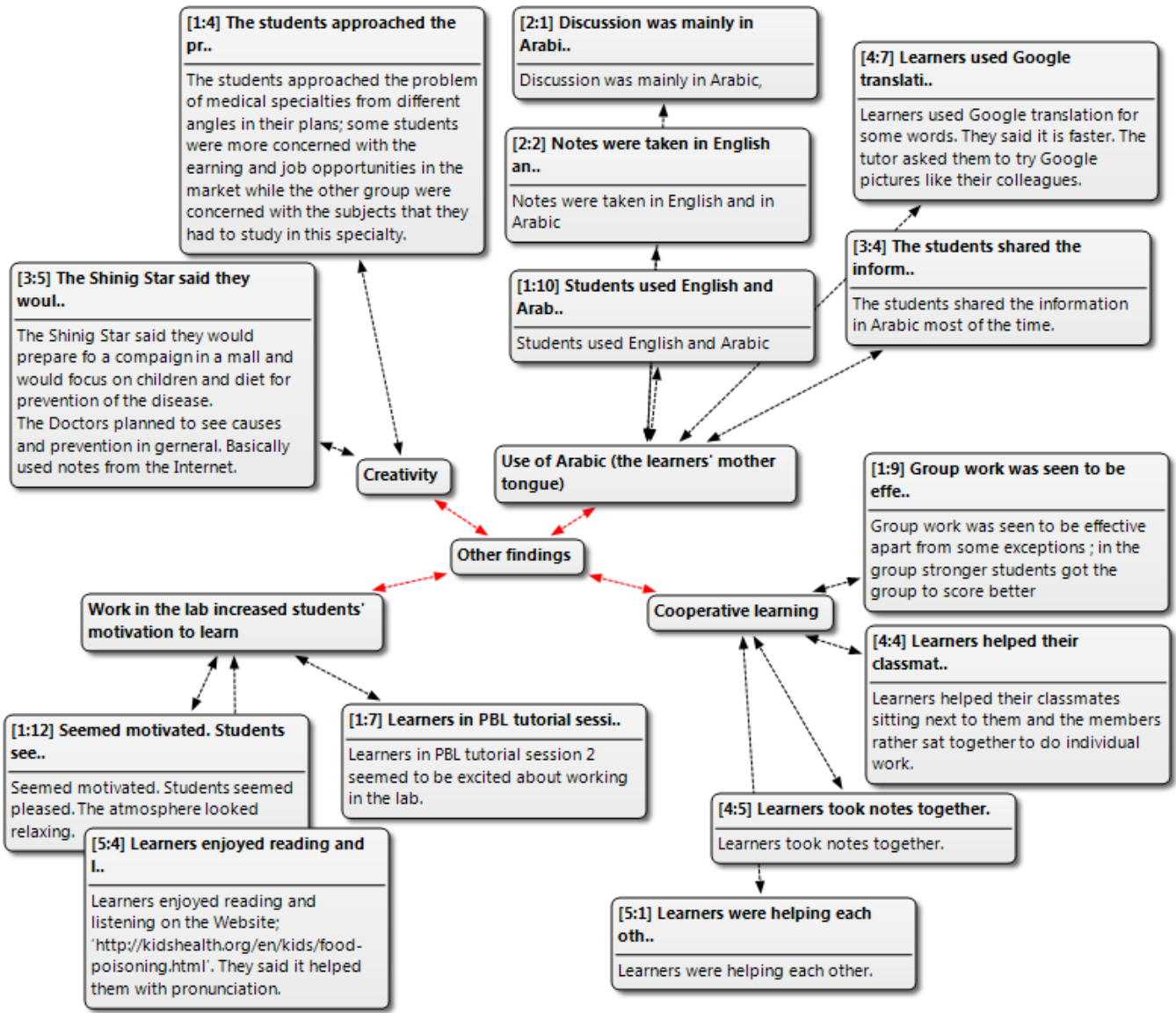


Figure 117; Other findings

One of the objectives of observation field notes that was discussed in Chapter 13 is maintaining the exploratory aspect of this study and determining the other effects of PBL on learners, in addition to indicators of autonomy. Figure 117, above, illustrates some of the students' behaviors related to language use as well as cooperative learning, creativity, and motivation.

It was noted during the course that learners were often using their mother tongue while conversing with each other. They used English only to refer to technical words. They used both Arabic and English for their plans. However, they only used English to converse with the teacher

or for their presentations. The learners still wanted to use Google translate, even in PBL tutorial 4, as they said it is faster. The notes obtained correspond to PBL tutorials 1, 2, 3, and 4. This does not mean though that learners did not use Arabic in PBL tutorial 5. The use of Arabic or the students' mother tongue in the English language class in PBL has already been reported in the literature (e.g., Aydinli, 2007). However, as previously delineated, certain tasks can be conducted only in English.

Throughout the five PBL tutorials, learners helped one another and weaker students seemed to have benefited from working with stronger students. Creativity also seems to be a major gain when using this methodology. From the first day, there had been variety in students' work and the way they approached a topic. In PBL 1, some students chose a medical specialty based on the salary that they would earn and the market needs. However, the other group looked for the subjects they needed to study and the availability of selected professions in their home town. This factor was also apparent in PBL tutorial 3. One group focused on children to raise awareness about diabetes, whereas the other group focused on causes and prevention in the general population. It was also noticed that variety reduced the monotony that might have occurred during the presentations, as the learners made use of different ideas and resources from their peers. This made them more eager to obtain new information and expand their knowledge beyond that which was presented in the regular classes. Eventually, one of the factors that should be taken into consideration when designing a PBL scenario is to leave room for a variety of ideas to emerge and reduce monotony.

Motivation was also noted as a factor that was affected during their work in the laboratory. This seemed to be based on the effect of learners' freedom to work on something they personally planned and thought was interesting, as opposed to being told what information to bring to class, read, and write. The laboratory also facilitated students' work while looking for information or during the presentations. Overall, the students enjoyed working in the laboratory.

In order to further investigate the impact of the approach on the learners we considered the correlation between attendance and students' autonomy development.

16.7. Attendance Rate and Correlation with Learners' Performance

Correlation refers to the dependence between variables; in this case there is a correlation or pattern between attendance and higher total autonomy as portrayed in table 20, below.

	Mean	Std. Deviation	N
Total_Autonomy_PBL_1_to_5	12.0431	2.97348	13
Attendance_Rate	.8554	.08922	13

Table 21; Descriptive Statistics

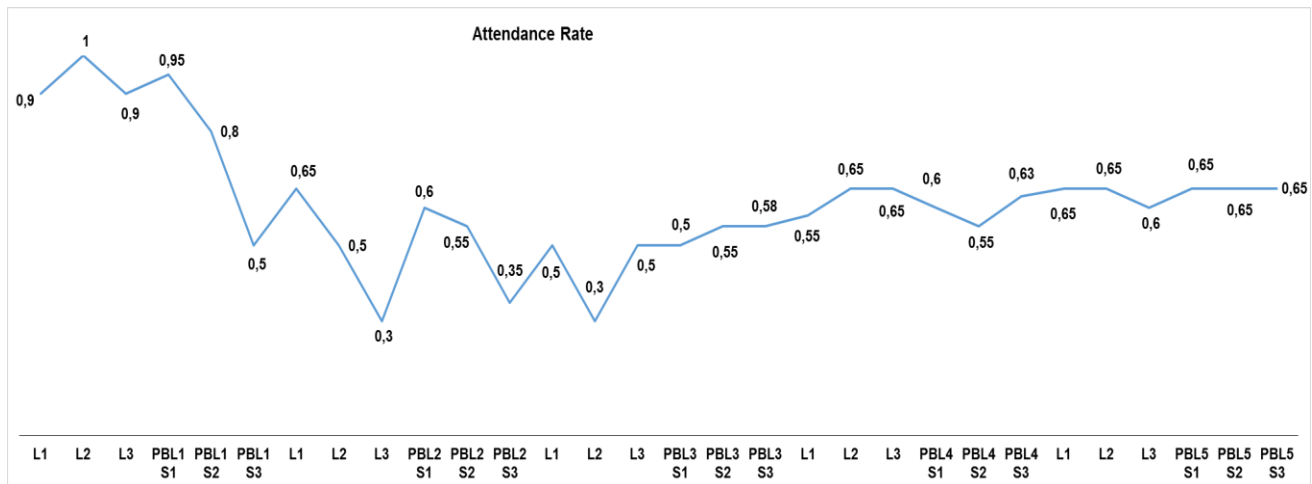


Figure 118; Attendance rate over the 5 PBL tutorials

For this particular graph, absence (previously demarcated as 2) was re-coded to 0. In doing so, an average was then calculated across the students for each time period, with a maximum of 1 possible (i.e., full attendance). Averages lower than 1 reflect greater absence, with scores below .5 suggesting less than 50% presence for that particular lecture or PBL session.

To determine whether attendance related to autonomy scores across all five PBL sessions (combined score), an average attendance rate was calculated for each student across all points of

contact, both L and PBL sessions. The average was based on 1 (present) and 0 (absent). Therefore, similar to the figure above, higher scores mean lower absence. Using this value and the total autonomy score for each of the individual students for the five PBL sessions, the correlation was statistically significant, $r(13) = .61$, $p = .027$, indicating that higher levels of attendance are associated with higher total autonomy scores across the 5 sessions.

As explained in the research protocol, both lectures and PBL tutorials work together towards a common end-product. The purpose of the lectures is to increase the learners' familiarity with a topic and language knowledge required to work on a particular problem scenario, leaving room for more discovery and learning through self-search for more information. These results demonstrate that the higher the attendance level for a participant, the better s/he scored. It can also be inferred from this situation that the approach had a positive impact on the learners.

16.8. Summary

Both the quantitative and qualitative analysis of the observations showed that learners generally developed autonomy over the five PBL tutorials, indicating a positive impact of the methodology on them. However, these changes were sometimes linear showing moments of stability, and, at other times, were non-linear, illustrating what are referred to as 'peaks and valleys' (Freeman, 1997). A bigger change was reported from PBL tutorial 1 to 2, as compared to between PBL tutorials 2 to 5.

Students did not develop at the same rate, and it was noticed that sometimes weaker students showed bigger changes. The students also scored higher in groups as opposed to individually, and it was concluded that PBL can enhance cooperative learning.

The field notes showed how learners were scaffolded and mentored during the tutorials to gain strategies. The notes confirmed that students were learning and their autonomy behaviors were positively changing. The notes have also shown instances of instability in completing some of the tasks, as the learners could sometimes perform tasks alone, and, other times, experienced difficulties with selected PBL tutorials. This factor was explained by the impact of learners' knowledge about a topic and language knowledge on their general performance.

Field notes also allowed the determination of other impacts of PBL on learners, such as motivation and creativity. It was reported that learners were excited about working in the

laboratory and exploring different resources to learn. The atmosphere was relaxing and anxiety-free and learners were engaged in the work, providing a different picture of the monotonous classroom environment they are used to. Learners did not know how to plan their work, but, when they were guided to think about what they wanted to do, they approached the topic from different perspectives and came up with a variety of ideas. This factor also impacted the last session of the presentation in which learners were eager to watch and see what the other group did. As such, students were learning from one another.

Chapter 17: The Focused Interview

A follow-up interview was conducted with the students when the course was completed to obtain their feedback on the whole experience and answer the research questions from the learners' perspectives. This was done, in part, to cross-reference the findings about learners' autonomy collected through the other tools that were used, to find out whether PBL could facilitate the teaching of language and content at the same time, and to determine whether PBL could enhance language skills and the types of skills it enhanced the most.

One issue that was encountered was that only six students returned for the interview. At the time of conducting the focus group interview, the students were about to begin their final examinations.

The interview schedule was written in English (appendix number 15), but it was explained to the students in Arabic. The students were given the option to respond in English or in Arabic based on their preferences. Three students answered in English, one student used some Arabic words when she necessary, two other students used both languages in combination with one another, and one student only used Arabic. The participants responses were recorded, transcribed, and then the data in Arabic were translated into English (appendix number 16).

Then, using Atlas TI software for qualitative data analysis, the data were initially reduced and coded into an excel sheet. This sheet was then imported into the software program. These codes were further grouped into themes to answer the research questions.

17.1. Students' Feedback on Language and Content Learning

1- Question 1: During this quarter you've studied in a different way, using the problem-based learning methodology. How can you assess your learning experience in terms of language and content?

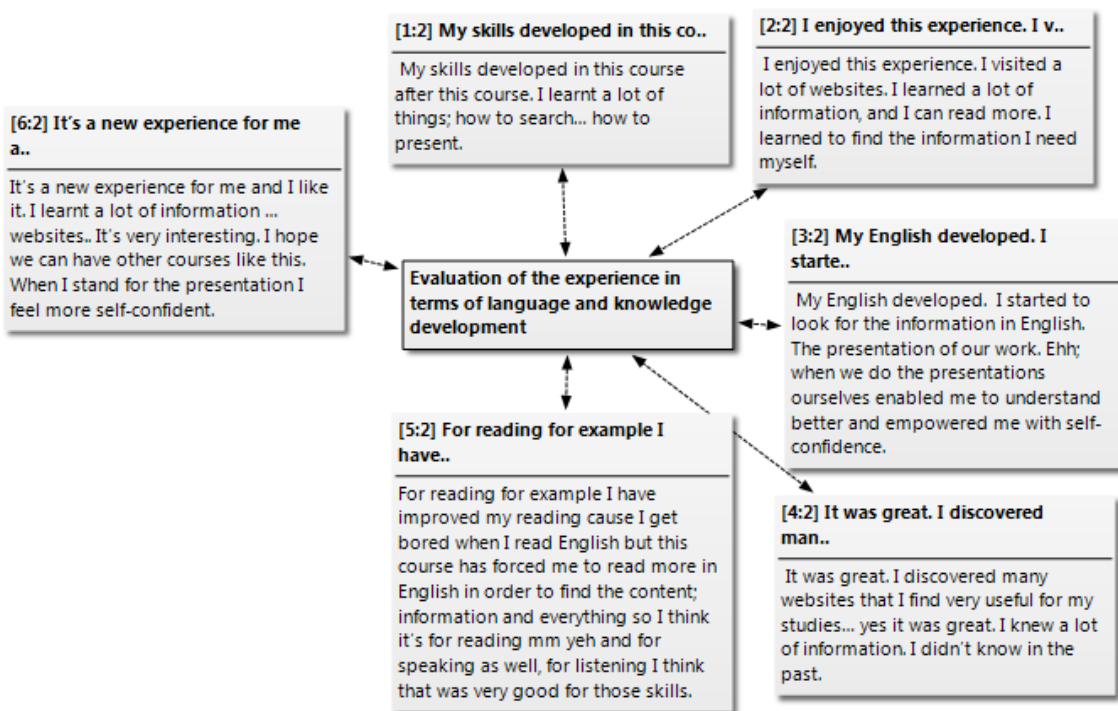


Figure 119; Evaluation of the experience in terms of language and content development

The purpose of Question 1 was to obtain students' perceptions of the whole experience in terms of the language and knowledge that they developed during the PBL-based course. The students reported that they enjoyed the course and that their language skills and knowledge of the subject had developed. They also made it clear that they learned how to learn in addition to language and content. These answers support the implementation of PBL as an alternative methodology that integrates language, content, and learning how to learn. The participants' responses, therefore, facilitate what is referred to as Problem-Based Content and Language Learning. As can be seen in figure 10:3 above, the interviewees pointed out that they developed knowledge about topics related to their fields of study and enhanced their language skills, learning strategies, and self-confidence. The interviewee in quote 6:2, stated that presentation made her feel more confident. Confidence is an essential step towards autonomy (see Chapter 8). This state is required for successful presentation and it can in turn be harnessed through presentation as Dudley-Evans and St John (1998) explained (see Chapter 10). In their discussion about 'speaking monologue', Dudley-Evan and St John recommended that in ESP teaching, students should be encouraged to make presentations to develop this state of confidence. PBL naturally provides this opportunity as a step in students' learning. As the quote shows, confidence seems to be developed. It is important to note as well that this interviewee is the same one who claimed that PBL is only good to teach other subjects and not English!

17.2. Language Learning Autonomy

17.2.1. Independent Action

Question 2: How did you like the fact that you had to find the information you needed yourself rather than you were given the information by the teacher?

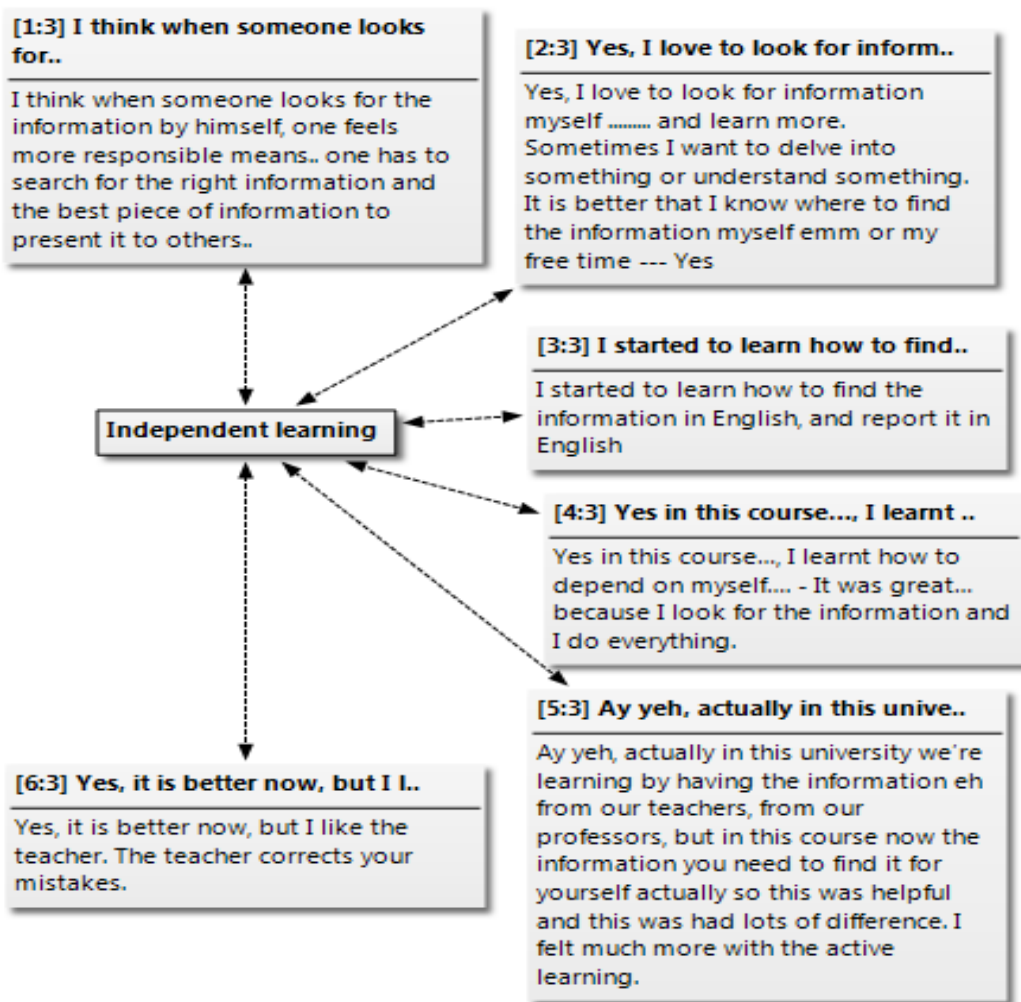


Figure 120; Independent learning

Question 2 targeted one of the indicators of autonomy, independent learning. The observation helped to identify learners' behaviors that reflected independent learning and the quantitative results showed the students had improved in this area.

The responses provided in this interview also showed a general agreement that the students learned how to find the information they needed to conduct a project or learn about a particular topic. The Internet is full of resources requiring different levels of proficiency, and, at the beginning of the course, the learners reported that they were confused. They also explained that they resort to Arabic to conduct searches and then translate their final texts and findings into English using Google translate. During the second PBL tutorial, the students were directed to use

specific websites and were also advised to use www.youtube.com to understand a process, such as first aid.

The learners were equipped with tools that they could use on their own, at any time, to comprehend a topic and to gather information about it. As evidenced in the interviewees' answers, the students generally felt they were able to conduct work on their own and that they saw a difference in their learning as a result of the skill impartation. As the individual observation showed, learners did not develop in the same way and until PBL 5, and there were fluctuations and inconsistencies in learners' progress. Interviewee number 6, for instance, reported that she feels better now, but she thinks that the teacher is necessary in one's learning. Specifically, she said, "Yes, it is better now, but I like the teacher. The teacher corrects your mistakes."

Interviewee number 1 associated this individual work with responsibility, which is a major component of autonomy. The respondent indicated that "I think when someone looks for the information by himself, one feels more responsible means; one has to search for the right information and the best piece of information to present to others."

Interviewee number 2 provided another interesting point, which is the ability to work outside the classroom on her own and needing to find information that she is interested in (i.e., self-directed learning). These are also two behaviors that are closely associated with autonomous learning. She noted that, "Yes, I love to look for information myself emm; and learn more. Sometimes I want to delve into a topic or understand something. It is better that I know where to find the information myself; emm or my free time; Yes." This seems to be a radical change in student's attitude. In the needs analysis, the students were described as passive and teacher dependent. The results in this study show that, to a certain extent, the reason for this attitude is based on their inability to work on their own, rather than not wanting to work on their own. In other words, the knowledge of how to learn, or meta-learning, appears to be the primary issue.

Interviewee number 3 also reported another change that is associated with the language the students used to depend on. In the needs analysis, it was found that learners were highly dependent on Arabic to learn English or to learn their subjects in English. In her response, the interviewee said, "I started to learn how to find the information in English, and report it in English." When learners were guided to use websites that suited their level of proficiency and

learned the strategies that helped them to use several resources to aid their learning, frustration was reduced and confidence seemed to have increased.

Interviewee number 4 sounded very positive about her experience. She said, “Yes in this course...; I learnt how to depend on myself...; it was great... because I look for the information and I do everything.” In this instance, the learner used the word independent, which hits the target. The student appeared to generate a feeling of joy in her ability to do things herself.

Interviewee number 5 compared the way she was used to learning in the university to the new way of learning that was introduced in the PBL course. Her response shows an awareness of the different types of learning, and she reported that the course benefited her in that she learned how to work on her own.

Question 5: Do you think you’ve learnt how to use other resources in addition to Google Translate when you face problems of comprehension?

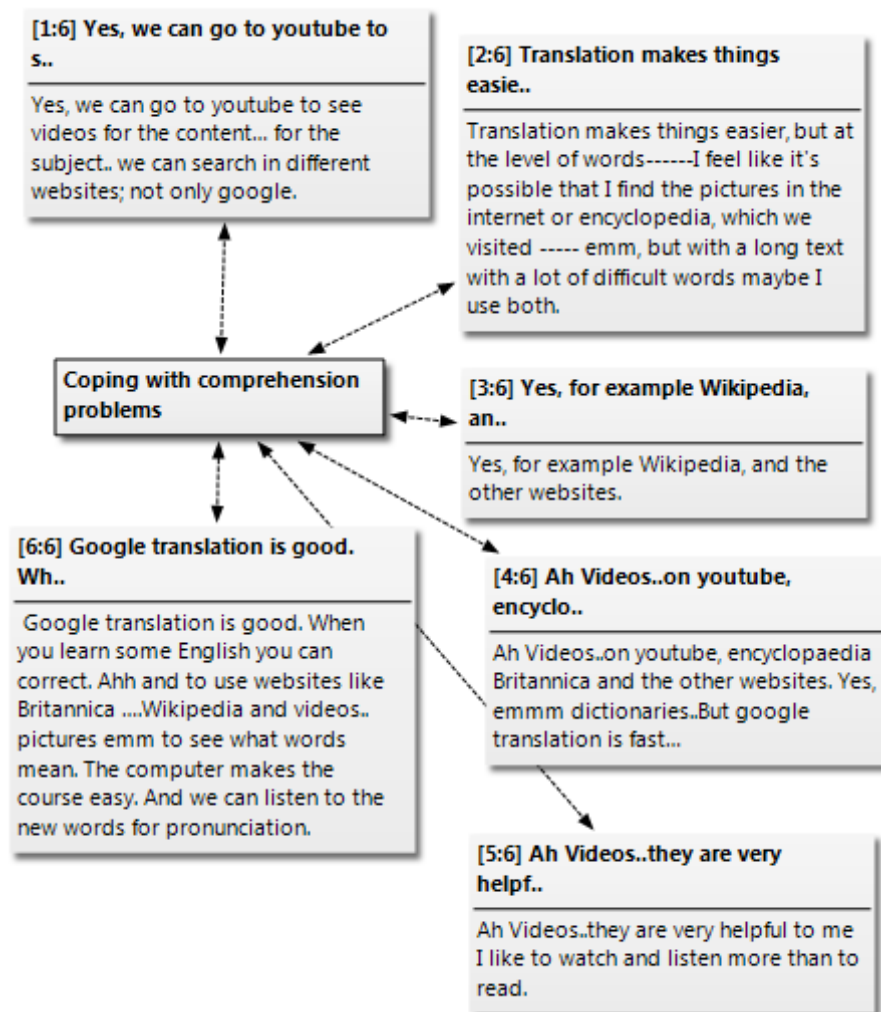


Figure 121; Coping with comprehension problems

Question 5 targeted a learning problem that was identified in the needs analysis, which involved students' ways of coping with comprehension problems. In the needs analysis, it was revealed that students resort to translation to understand their lectures in English. At the end of this course, whether students developed some strategies to help them comprehend medical terminology or medical discourse, at the text level, was examined.

The students generally mentioned that they now use www.youtube.com to obtain information, such as watch a process, in English. During the course, the students had the opportunity to visit several websites that helped them understand medical specialties, diseases, first aid, and other relevant topics. They learned how to use encyclopedias and dictionaries. They knew that there were other accessible ways to deal with the comprehension problem, and, at the

same time, extended their knowledge of the subject and English in general. The interviewees indicated they had benefited from this ‘training’ and developed knowledge that would help them in their lectures. Following the course, even when Google translate is mentioned, it is accompanied with awareness that it has to be checked and edited and that it represents one option among many others.

17.2.2. Decision Making

Question 3: Do you think you can now plan your work and how to proceed when you have to do when you need to carry out a task by yourself?

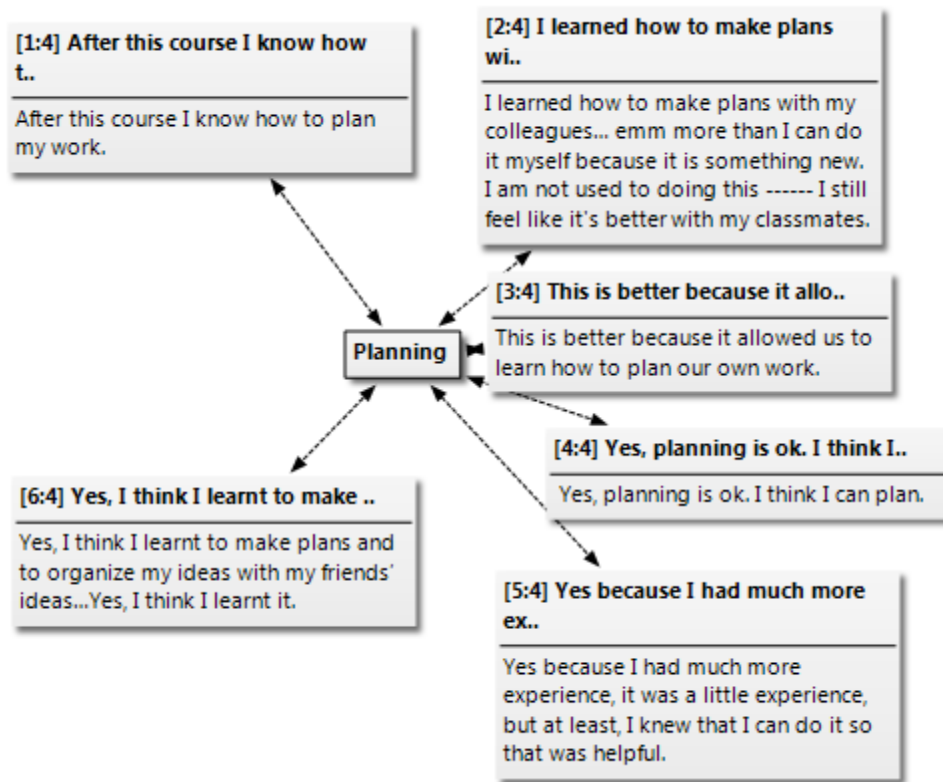


Figure 122; Planning

The ability to set a plan is another feature of autonomous learning. The interviewees generally agreed that they learned how to plan work and organize ideas. They also reported that because this is also something they were not used to, they were less assertive than in the previous question. Interviewee number one, for instance, stated that she thinks she still needs her

classmates' help to make a work-plan. Interviewee number 4 also said she could plan with her classmates. However, the other interviewees sounded more positive and affirmative in their answers, as they reported that they now felt they are able to plan their work on their own.

Question 4: Do you think you've learnt how to assess your work, know how you can make it better?

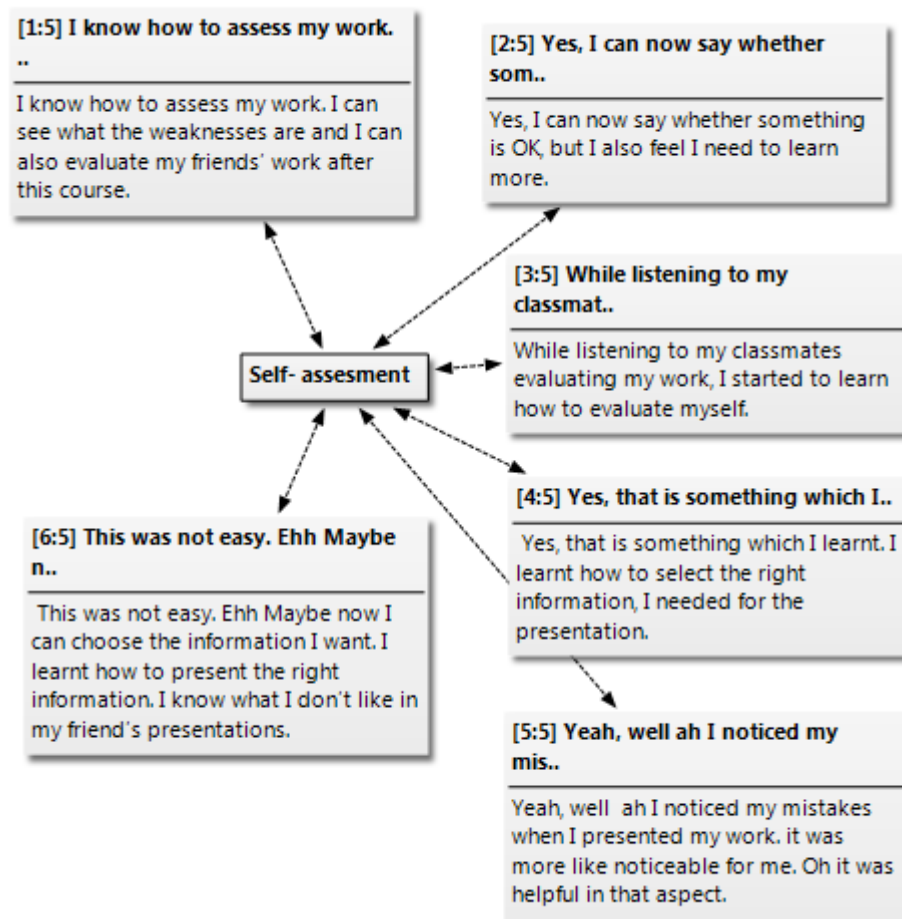


Figure 123: Self-assessment

Self-assessment is another feature of autonomy. During this course, the students were trained to assess their own work and their peers' work. In the field notes, it was identified that the learners slightly developed this 'skill'. Similarly, the interviewees reported that this is a new skill for them and that they were not used to it. They stated that it has not been easy to learn how to assess themselves, but they also said that they learned how to do that in general. Their answers range from affirmative, such as "Yes, that is something which I learnt," to less affirmative, "Yes,

but I think I need to learn more.” Although they recognized it was not easy at the beginning and most of the students agreed that they can now evaluate their work, select the right information, and determine whether something is relevant or not.

To conclude, questions 2, 3, and 4 investigated students’ behaviors and feelings as they relate to autonomy. The results correspond with the quantitative analysis obtained from the observations that were conducted during the study.

17.2.3. Taking Responsibility

Question 5:How did you like group work?

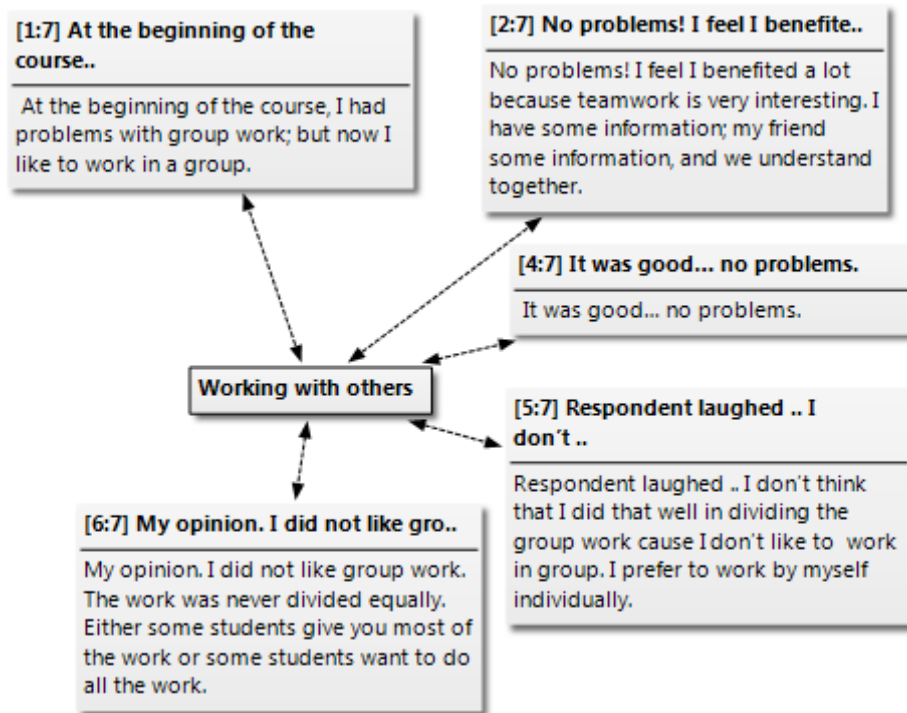


Figure 124; Cooperative Learning

During the observation, learners worked together and helped each other, despite the fact that many of them were not used to working in groups. During group work, the learners were monitored, but the interview responses suggest conflicts occurred during the group work sessions. Students with lower English proficiency levels reported that they benefited from group work. Interviewees 5 and 6 explained that they did not like group work. Respondent number 6

complained about group work, the unfair division of work, and about the fact that respondent 5 wanted to do all the work herself. Respondent number 5 appears to have the highest level of English proficiency, as compared to her classmates, and she might have felt she was held back during group work and wanted to do the work instead of waiting for other slower learners in the group. These kinds of problems are also not unfamiliar in PBL research. This is because learners' learning styles and preferences, as well as personal character, interfere with their choice to work alone or in a group. Perhaps, in a longer study, these attitudes would have improved. For instance, interviewee number 1 reported that her attitude changed towards group work and she has a much more positive perspective towards it.

17.3. Language Skills Development

Question 8: Classify the following skills from 1 to 5. Which one do you think improved the most?

- Speaking
- Speaking with others
- Reading
- Writing
- Listening

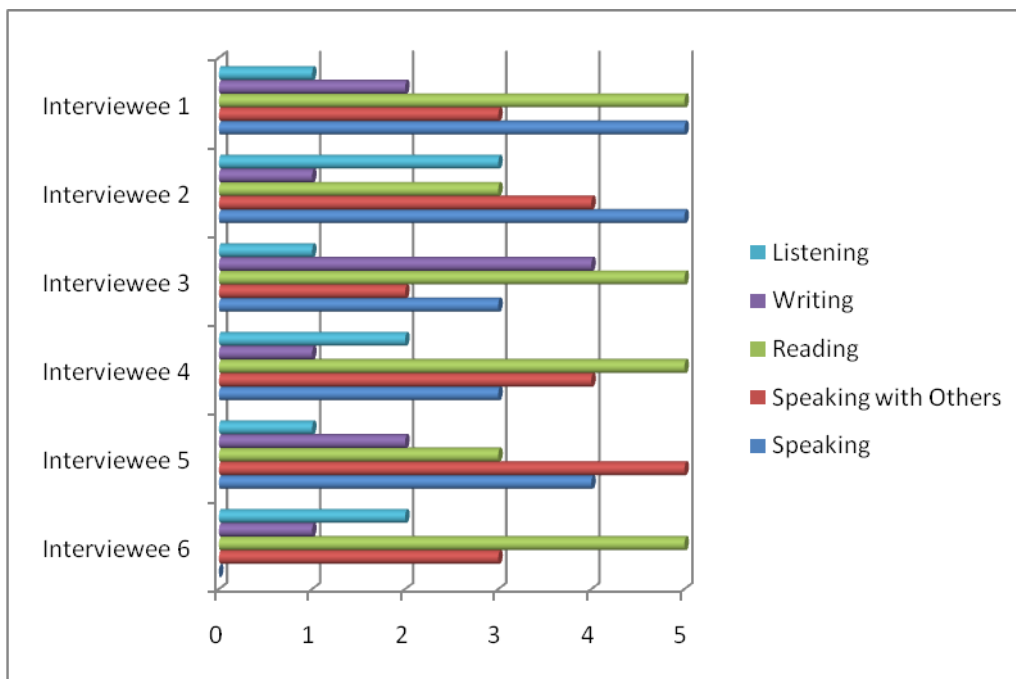


Figure 125; Enhanced language skills during the PBL course according to participants

Interview question 1 obtained a general evaluation of their learning experience, and the interviewees reported that their language skills had developed during this PBL course. Interviewees were also asked to state which skills were enhanced the most, whether these were reading, writing, speaking, speaking with others or listening. Their responses were recorded in scores on excel, with 5 being the most enhanced and 1 being the least enhanced. The results, as can be seen in figure 125, show that reading was the skills that was enhanced the most. During the PBL tutorials, students were guided to use reading strategies that would help them select the right link from the title, to skim for information, scan, take notes and guess meanings. They were directed to use websites that have material written in English and that they could generally cope with in terms of level of proficiency. Essentially, it was at this stage that they started to read and understand.

The next two highly scored skills were speaking and speaking with others. This is also a natural result of the PBL course, as the students were previously used to listening to the teacher and would typically only speak to answer a question. In this course, they had to negotiate the meaning of a problem scenario, plan their work, report their parts in English, and make their presentations in English. Although students did not use English all the time during the course, especially when they communicated among each other within groups, they still had to make their presentations in English and read in English, which promoted their learning. Previous studies (e.g., Aidinly, 2007) also reported that students in a mono-cultural environment would speak their language rather than the target language in group work. It may be argued that this is unavoidable and that it is not a major issue when learners are using English, for example, to put together a plan of work when the final product is English. Perhaps, one benefit is that students' interactions increase and learning increases, even if they use a combination of English and Arabic. This is because students learn other words from one another, as it was reported in the interview. Writing was the fourth highest skill that was enhanced, with one of the skills that was enhanced the least being listening. In this course, apart from watching videos, the focus was not on listening strategies. Even though students had to listen to one another during presentations, this does not replicate, for instance, a listening comprehension activity. Writing was also classified as among the least enhanced skills. This may be because the course did not focus on

writing skills, in particular. The students had to take notes and summarize findings, but writing was kept simple.

17.4. Students' Attitudes towards PBL

Question 8:

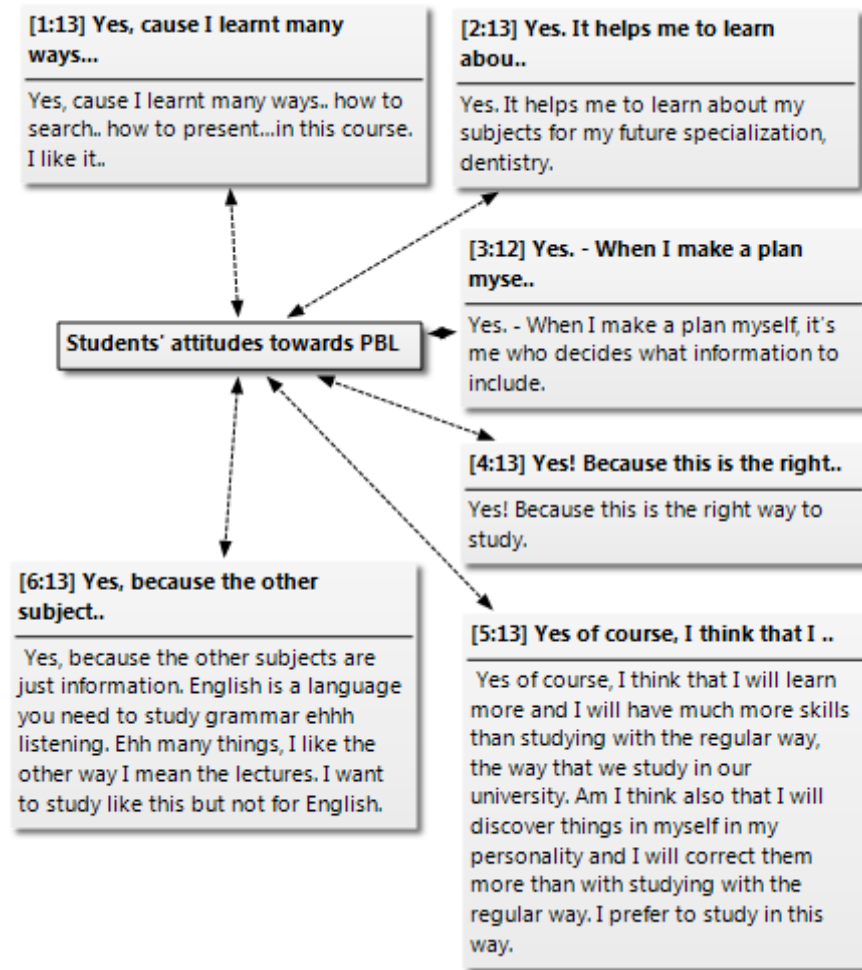


Figure 126; Students' attitudes towards PBL

The final question sought to determine the learners' attitude towards using PBL to study English. All the interviewees sounded positive about the experience, and they reported that they even wanted other courses to be taught in this way. That is, courses in which they can do things themselves and have the opportunity to discover things on their own. Interviewee number 6, however, expressed her concern that she prefers to be taught English in the more traditional way. She explained, *"because the other subjects are just information. English is a language you need to study grammar ehhe listening. Ehh many things, I like the other way I mean the lectures. I want to study like this but not for English."* This statement takes suggests some degree of concern and apprehension about English. However, if the same interviewee's responses to the other questions are examined, she is also one of the learners that commended Google translate and criticized group work. She also reported that self-assessment was not easy and that she

preferred the teacher to correct her mistakes. In question 1, however, this interviewee reported that she learnt a lot of information and discovered many websites. She also stated that she would enjoy attending other courses that are similar to this one. However, examining her responses throughout, it is evident that the course did not have much impact on her. This is also confirmed in the quantitative analysis, which showed a slight change in the participant SM's behavior in which she scored between 2.5 and 3.5 over the 5 tutorials (See figures 96 and 97). However, other students showed a higher change in their scores, as the individual student analyses show. Perhaps due to personal preferences, learning styles, and attitudes that vary from one learner to another, it might take longer for one learner to adapt to a new learning situation than others.

17.5. Summary

In general, most of the interviewees provided positive sentiments about the PBL experience and agreed that the course benefited their language skills, knowledge about their field, learning how to learn, and depending on themselves. The learners reported that they learnt how to plan their work, where to look for resources, and how to select the right information. Their degree of confidence, however, varied from assertive to 'I still need to learn'. It is useful to bear in mind that students agreed that this course mostly benefited their reading and speaking abilities. In the medical school needs analysis that was conducted, learners complained about the difficulty of the discourse and terminology. From this perspective, learners should have acquired reading strategies and different ways to cope with comprehension, instead of relying completely on translations or teacher assistance.

The methodology seems to be generally successful with the students who 'accepted the challenge' and stayed until the course ended. With one exception, a student said she believed that English should be taught in the traditional way, while the other interviewees saw the benefit of this particular approach.

Chapter 18: Conclusion

18.1. Research Findings

As outlined in the first part of the study, this project had two main objectives. First, it sought to determine potential methods for overcoming students' English language learning problems that they experienced as part of their Medical Academic Purposes requirements. Second, it aimed at addressing one issue about the necessity to consider methodologies of

teaching/learning ESP. For this reason, PBL was implemented, which could integrate language, learning strategies, and content into a single course.

On a small scale, this action research sought to introduce pedagogical changes in order to solve the problem of passive learning, an issue diagnosed in the needs analysis that was conducted. It aimed to determine solutions so that learners became more autonomous in English language learning, which would assist them with learning their subjects in the future. In the study of the context in Chapter 4, Rahmani and Alhaisoni (2013) suggested that learners in Saudi Arabia should start studying English earlier than grade 6 (i.e., grade 3) to solve the problem of English language in the country. This study has shown that in thirty hours during a single quarter, the students could learn some skills and strategies, they did not possess before, despite the number of English hours they had had. The students needed learning strategies and needed to use the language in genuine situations, as the teachers in the PYHC suggested, rather than to be provided with more English hours. If the students attend the university with little knowledge of the English alphabet after seven years of studying it, three more years is not likely to solve this issue because the problem is much deeper (Rahmani & Alhaisoni, 2013).

As an answer to the research questions in this study, the results showed that the learners developed some autonomy in their language learning and appropriate learning strategies. This development, as the charts in the quantitative analysis show, was non-linear for most of the students, but the students generally improved. Students also developed differently. As outlined in the individual observation charts, learners benefited differently from the course. For instance, the changes were more apparent among learners who scored lower in the first sessions of the PBL tutorial. Generally, students also developed their language skills and gained knowledge in their field. Motivation also appeared to be enhanced during this study, and it may be inferred from the students' interviews that they were excited about the course. In the laboratory, it was noted that the learners were trying their best to invest themselves and were happy to work. In addition, they showed they could be creative on many occasions, especially when the problem-scenario was such that a variety of answers or solutions could be provided or generated. Findings achieved through the questionnaire, observation and the focused interview showed that learners helped one another and learnt from one another. The observation scheme results indicated that learners performed better when they worked in groups. These results coincide with Chamot's (1987)

arguments regarding cooperative learning (See Chapter 8). Similarly, Oxford (2002) argued that the learners use their ‘social and affective side to get help’ (See Chapter 8). This was also true as we could see in the learners’ answers. These findings led us to conclude that PBL seems to offer learners the opportunity to use and enhance cognitive, social and affective strategies. In Chapter 8, Oxford 2002 and Chamot (1987) argued that these strategies are the route to planning, monitoring and evaluation, in other words to autonomy. We may conclude that the learners had to depend on different sides and strategies which might be the secret behind their development in autonomy.

On the other hand, several limitations were recorded. PBL structure was amended in the context associated with this study to sort out certain problems. For example, in normal circumstances students have to do their search for material and resources outside the classroom on their own. In the current context, a third session had to be included and homework needed to be rescheduled to be done in the laboratory with the presence of the tutor. Most of the students did not have basic knowledge on how to work on their own and did not do the work required from them after the first PBL tutorial. Another reason relates to learners’ attitudes. As reported in the needs analysis, language learning takes place only inside the classroom and students are not used to doing homework. In Chapter 8, with reference to Paris and Paris (2001), we reported that learners who forget or tend to do their homework are likely to lack motivation and Self-Directed Skills. The very first sessions of PBL, we could see that most of the participants did not do the work required from them, which can confirm that they lacked strategies related to autonomy as well as motivation.

Eventually, there was little choice but to make the changes in the structure of PBL sessions in order to ensure work was done because there was limited time available. This factor definitely limits the results obtained in this study. If the course had continued according to the initial plan, different results might have been obtained and more problems could have been experienced. However, at an initial state where learners had no knowledge or ability of working on their own, this step might have been necessary to get them ready to become detached from the teacher and classroom and work more independently. If there was more time available, an attempt could have been made to implement the first plan, which was a two-session-PBL-tutorial after learners were trained to work on their own.

There were also dropouts in the study, which suggests that it might take some time to change the learners' mentality and attitude and to have them convinced of the benefits of work outside the classroom and on one's own, but the experience associated with this study is certainly a promising start.

As outlined in the first part of this study, it seems that the foundational approach is more useful than the pure PBL approach in the context associated with this study, and for many reasons. PBL learners usually approach problem scenarios from different perspectives and bring different types of resources and information. This factor can put some constraints on assessments when students need to sit for one common exam. In the literature, it was found that a limitation of PBL is students' anxiety about exam content. In assessment, learners need to have some common material to be tested on, and the foundational approach makes this possible. The foundational approach offers standard content in addition to 'self-taught material'. However, in the context associated with this study, not every learner would be committed to working as required in PBL, and this would allow such learners to learn something from the course.

To conclude, it may be stated that PBL is more likely to enhance students' learning autonomy. PBL combines language, content, learning strategies, and offers a natural context for ESP teaching/ learning. It also provides them with the opportunity to deal with medical discourse through reading materials. Learners naturally use the language in genuine situations and use different language skills at different steps of the tutorial in an integrated, natural way.

On a broad scale, this study contributes to the field of language pedagogy involving English for Specific Purposes. For several reasons, studies about the implementation of PBL in ESP learning failed to confirm the findings in the literature about practical steps towards the implementation of PBL in ESP. For instance, Ismail and Shah (2013), in Saudi Arabia, reported the success of this methodology in a study on an experiment they conducted using a PBL and a non-PBL group. However, nothing was said about the materials used in the course, the type of PBL approach, problem scenarios, the facilitators, whether teachers were trained, and how the classes were conducted.

In part I of this study, the epistemological bases of PBL were studied along with how it is compatible with language learning, and, particularly, with ESP. It was concluded that it can be easily borrowed and implemented into this field. It may also be argued that PBL can benefit ESP

through naturally bringing the context of the field of the learner to the ESP course, which allows an integrated practice of the language skills deemed necessary to solve problems or work on a problem scenario. Therefore, language becomes ‘the vehicle’ for content, and the learners develop a variety of learning strategies. It was, therefore, hypothesized that if PBL is implemented in language teaching for Specific Purposes, an extension of the CLIL approach may be suggested to encompass a methodology that can create a theoretical framework for the teaching of ESP, which may be referred to as *Problem Based Content and Language Learning (PBCLL)*.

Eventually, it may be envisioned that if PBL is implemented in the learning/teaching of ESP, it can help learners develop language skills and learning strategies as well as acquire knowledge in their fields of study.

These arguments can contribute to the findings about PBL achievements in the literature. Our findings, despite their limitations, can back up the view which sees that PBL is a promising teaching methodology against the one which doubts its benefits, such as Colliver (2000); (see Chapter 11).

18.2. Research Limitations

During this study, several challenges were identified. As already stated, institutional consent was granted with difficulty and an entire year was required in order to obtain this consent. In the needs analysis, it was difficult to investigate the target situation. In 2011, when this study was started, the PYHC was under the umbrella of the medical school and in the same building. At that time, the principal investigator of this work was the coordinator of these colleges and used to liaise between the medical school and the English language Department in this college. Therefore, communication with the medical staff was easier, as both departmental components were considered part of the same school. However, after the PYHC was moved to the new campus and placed under the supervision of the Preparatory Year Deanship, the relationships with the respective individuals disappeared. Within two academic years, the management changed, teachers changed along with many administrative employees. Attempting to work on the needs analysis in 2013, therefore, became very difficult. Teachers in the target situation were not willing to give feedback and were very cautious about ‘involving English

teachers in their work'. Eventually, an attempt was made to obtain the program from the Internet in order to identify the type of content the students needed to work on. In relation to the questionnaires with the students, several correspondences had to be sent to the vice-dean in order to get permission.

The empirical stage was conducted in the Academic year 2013-2014, at a time when adjustments were being made to the theoretical part of this study. This is because the Preparatory-Year planned to make changes to the PYHC programs, textbooks, and even the placement test for the next academic year. However, the purpose was to examine the same situation that was analyzed during the needs analysis. Had the empirical work been postponed, the results and outcomes might have been affected.

Attendance had been a major problem, as the PBL course was not a genuine class. Initially, 20 students were recruited and the students were notified that the course would require some homework. Students generally have a negative attitude towards homework, which was seen in the second session of the PBL tutorial. That is, students did not complete the work and many dropped out. This also restricts the results in this study. Despite the fact that improvement in the students' behaviors were recorded, the methodology was not positively approached by every 'participant'.

The students who enrolled to this course volunteered to do so, and this might have introduced a bias as they had been motivated to do so. Similarly, students who had remained involved in the course over the entire period must have been motivated to stay till the end. As discussed in Chapter 8, motivation impacts autonomy and vice-versa. If this project was conducted in a typical classroom environment or a genuine course, would the study have concluded with the same results and findings? One major feature of autonomy is taking responsibility and doing work on one's own outside the classroom without the presence of a facilitator. The results in this study reflect that this state has yet to be achieved, since we had to do the work in class to ensure it was done. This fact also limits the results in this study.

18.3. Directions for Future Research

In relation to the context associated with this study, the status of English is changing in KSA. Having realized the importance of the English language, the community started organizing training courses for the population and both high school students and parents are taking courses.

The policy regarding education has also changed. Previously, Saudis were not allowed to enroll their kids in International Schools in which the curriculum is 80% English-based. However, three years ago, children were allowed to join these schools. The context associated with English learning is changing, and perhaps attitudes towards learning will also change. Will PBL be more welcomed in the future in KSA?

In this study, the problem of passive learning was the primary focus. However, from what the students reported in their interviews, it was noted that PBL can also enhance language learning skills along with knowledge in their field and useful learning strategies. Research in the future can further investigate the language skills in a more focused way. For example, The impact of PBL on reading, the impact of reading on writing using portfolios, speaking through recording the students at the beginning and the end of the course in a free conversation, and accuracy versus fluency could all be examined in future research.

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NB: Audio files will be provided in CDs: (Interview with PYHC teachers/
Needs Analysis; Focused interview with students).

Appendices

- Part I Documents

NB: Missing appendices have been removed for confidentiality

Appendix 8:

Questionnaire Levels 3 and 4 Students at the PYHC

1. How do you understand a new word when working on your own?
 - 1- Look up the meaning of the word in a monolingual dictionary.
 - 2- Guess the meaning of the word from context.
 - 3- Translate the word in your mother tongue
 - 4- Ask someone to give you the word meaning in Arabic.

2. How do you learn a new word?
 - 1- I memorize it from a list of words.
 - 2- I revise it in given examples.
 - 3- I use it in new sentences on my own.

3. How do you learn to write in class?
 - 1- I read a paragraph, do grammar and vocabulary exercises and use given information to write a paragraph about the same topic.
 - 2- I find ideas about one topic and organize them to write a paragraph.
 - 3- I read a paragraph, do grammar and vocabulary exercises and find new ideas to write a paragraph about the same topic.

4. How do you prepare for your grammar exams?
 - 1- I memorize ready sentences containing the grammar rule.

- 2- I memorize grammar rules only.
 - 3- I practice doing exercises on my own.
 - 4- I make new sentences using the grammar rules.
5. How do you prepare for your writing exam?
- 1- Practise writing new paragraphs on your own using your own ideas.
 - 2- Memorize examples of the paragraphs in the unit you would be tested on.
6. Do you expect the exams to be straight from the books ?
- Yes/ No
 - Why or why not?

Appendix 9:

A Questionnaire with 2nd Year Medical students

(5) Strongly agree

(4) Agree

(3) Neither Agree nor Disagree

(2) Disagree

(1) Strongly Disagree

- 1. English hinders my understanding of the subjects I'm currently studying. 5-4-3-2-1
- 2. I can't understand the subject text as a whole. 5-4-3-2-1
- 3. I can't understand the medical words in the text. 5-4-3-2-1
- 4. I usually translate my lectures into Arabic to better them. 5-4-3-2-1
- 5. I use the Internet to explore the subject I'm studying better. 5-4-3-2-1
- 6. I think the English course at the Prep-Year prepared me to study medicine in English. 5-4-3-2-1
- 7. I think the course materials in the Prep-Year English course are related to my present studies. 5-4-3-2-1

- **Part II Documents**

Appendix 12: Institutional consent

To Dr. Maha Al-Heisouny

Vice-Dean of the Prep-Year

5th February, 2013

Dear Dr. Maha,

I would like to ask permission to conduct a research in teaching English for Medical Purposes in your honorable institution. This research aims at measuring the impact of using the problem-based learning method on the learners' linguistic skills (with focus on reading and speaking), as well as students' autonomy and memory. I need this data for my PhD (The Impact of Problem Based Learning (PBL) and Blended PBL on Learners of English for Medical Purposes).

I need to teach two groups of students: an experiment group and a control group of 28 students each. The experiment should be carried out over 8 weeks (the 4th quarter of this academic year). I am planning to work with our current Level 4 students who will finish their English course this quarter and will be free during quarter 4. This is possible for the students and for me if I teach in split shifts; I can teach the students over 4 days a week from 10:15 to 11:45 (in my free time). Each group will benefit from 2 days.

The control group will be taught the book English for Health Sciences (attached is a copy of the table of the cover page) which is a continuity of the series we are currently teaching to level 4 students. For the experiment group, I will teach the same topics, but in the context of problem scenarios and follow the PBL tutorial procedure. For example in the unit about smoking the problem scenario is "You are a doctor; a heavy smoker comes to see you with lung problems. What would you do?"

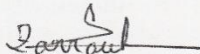
The students will only have to attend a course and fill in some questionnaires that I will send to the deanship for approval. They will also take a test at the beginning and at the end of the quarter to measure the impact of the method on their learning of English.

I only need the students and a classroom to accommodate them for this class time.

Thanking you in advance for considering my request and looking forward to your approval.

Sincerely yours,

Hajer Zarrouk



ELC Lecturer

PhD student (Le Havre University, France)

OK
BUT: You have
to ask the students
if they
want
C. ILK 10/2/11 A.P.

Observation Data

Appendix 13: Observation grid: Language learner autonomy

Observer's name:

Objective: to observe students' behavior that can indicate autonomy in language learning as a group.

Circle 1- 2- 3 or 4: 1- Strongly disagree/ 2- disagree/ 3- agree/ 4- strongly agree

Problem scenario 1: Medical specialties: *As a medical student, by the end of this year, you need to choose a medical school. **Decide** what field of medicine you want to specialize in and which specialty you would like to do.*

Problem scenario 2: Diseases: *Is obesity a disease?*

Problem scenario 3: Diseases: *Al-Qurashi et al. (2011) reported, "The prevalence of diabetes is high among the Saudi population and represents a major clinical and public health problem" (p.19). As a medical student, what would you do?*

Problem scenario 4: First aid: *You went camping in your region. A snake bit your five-year-old brother. What would you do?*

Problem scenario 5: First aid: *You are on a vacation with your family. After dinner, your two brothers who ate the same thing started vomiting, and having diarrhea and fever. What would you do?*

I- PBL Tutorial Session 1: Students observed as a group

Session 1: Date: _____ (Observation as a group)	
1- Students were able to comprehend the problem scenario without help from the tutor.	1- 2- 3- 4
2- Students were able to set their work plan without help from the tutor.	1- 2- 3- 4
3- Students were able to identify their gaps of knowledge.	1- 2- 3- 4
4- Students were able to divide the work between the group members to achieve their objectives.	1- 2- 3- 4
5- All group members actively participated and shared in all the previous steps.	1- 2- 3- 4

II- PBL Tutorial Session 2: (Observation of an individual student)

Group size...../ Student's initials

-Session 2: Date: _____	
6- The student knew how to explore the information on the Internet in English without help from the tutor.	1- 2- 3- 4
7- The student was able to select the right information to fulfill the work plan without help from the tutor.	1- 2- 3- 4
8- The student was able to comprehend her material using reading strategies and available learning aids without help from the tutor.	1- 2- 3- 4
9- The student was able to tell her group the gist of her part without significant problems.	1- 2- 3- 4

III- PBL Tutorial Session 3: Presentation (Observation as a group)

Group size...../ Students' initials

Session 3: Date: _____	
10- The students were able to put their work together according to their plan.	1-2-3- 4
11- Students were able to present and explain their work to the other groups and to the tutor.	1- 2- 3- 4
12- Students were able to assess their own work.	1- 2- 3- 4
13- Students were able to assess their peers in the other groups and give feedback on other groups' work.	1- 2- 3- 4
14- All group members participated equally and shared in all the previous steps.	1- 2- 3- 4

Results

I- PBL Tutorial Session 1: (Observation as a group) The Shining Stars Students'
initials: M.N; D. H; M. A; N. A; R. K; T.A.

Session 1: Date: __3-04-2014_ 17-04- 2014_ 28-04-2014_ 7-05-2014_ 18-05_ 2014					
1- Students were able to comprehend the problem scenario without help from the tutor.	2	3	2	2	3
2- Students were able to set their work plan without much help from the tutor.	2	2	3	3	3
3- Students were able to identify their gaps of knowledge.	2	2	3	2	3
4- Students were able to divide the work between the group members to achieve their objectives.	2	3	3	3	3
5- All group members actively participated and shared in all the previous steps.	1	2	3	2	3

I- PBL Tutorial Session 1: (Observation as a group) The Doctors Students'
initials: R. A; R. K; B. M; J. K; K. M; B. M; S. M.

Session 1: Date: __3-04-2014_ 17-04- 2014_ 28-04-2014_ 7-05-2014_ 18-05_ 2014					
1- Students were able to comprehend the problem scenario without help from the tutor.	2	3	3	4	4
2- Students were able to set their work plan without much help from the tutor.	2	3	3	4	4
3- Students were able to identify their gaps of knowledge.	2	4	3	4	3
4- Students were able to divide the work between the group members to achieve their objectives.	2	3	2	3	3
5- All group members actively participated and shared in all the previous steps.	2	2	3	3	4

II- PBL Tutorial Session 2: (Observation of an individual student)

Group : The Shining Stars/ Student's initials: **M N**

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	2	3	2	3	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	2	3	2	3	4
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	3	2	3	3
9- The student was able to tell her group the gist of her part without major problems.	2	3	2	3	3

Group: The Shining Stars/ The student's initials: D H

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	2	3	2	3	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	3	3	2	3	4
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	2	3	2	3	3
9- The student was able to tell her group the gist of her part without major problems.	2	3	2	3	3

Group: The Shining Stars/ Student's initials: M A

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	1	2	2	3	2
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	2	3	2	3	3
8- The student was able to comprehend her material using reading strategies	2	2	3	2	3

and available learning aids without much help from the tutor.					
9- The student was able to tell her group the gist of her part without major problems.	1	2	2	2	3

Group: The Shining Stars/ Student's initials: N A

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	1	2	2	ab	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	1	2	2	ab	3
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	2	2	ab	2
9- The student was able to tell her group the gist of her part without major problems.	1	2	2	ab	2

Group: The Shining Stars/ The student's initials: R. K.

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	1	2	2	ab	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	1	2	1	ab	3
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	2	2	A b	2
9- The student was able to tell her group the gist of her part without major problems.	1	2	1	A b	2

Group: The Shining Stars/ The student's initials: T.A.

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	1	ab	2	3	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	1	ab	2	2	2
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	ab	2	2	2
9- The student was able to tell her group the gist of her part without major problems.	1	A b	2	2	3

Group : The Doctors/ The student's initials: J.K.

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	2	2	ab	2	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	1	2	ab	2	3
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	2	ab	2	2
9- The student was able to tell her group the gist of her part without major problems.	1	1	ab	2	2

Group : The Doctors/ The student's initials: B M

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	2	ab	2	2	3
7- The student was able to select the right information to fulfill the work plan	2	ab	2	2	3

without much help from the tutor.					
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	ab	2	2	3
9- The student was able to tell her group the gist of her part without major problems.	2	ab	2	2	3

Group : The Doctors/ The student's initials: K M

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	1	2	2	2	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	1	2	2	3	3
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	2	2	2	3
9- The student was able to tell her group the gist of her part without major problems.	2	2	2	2	2

Group : The Doctors/ The student's initials: S M

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	3	4	3	4	4
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	3	3	3	4	4
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	2	3	3	3	3
9- The student was able to tell her group the gist of her part without major problems.	2	3	3	3	3

Group : The Doctors/ The student's initials: R A

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	3	4	4	4	4
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	4	4	4	4	4
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	3	3	3	4	4
9- The student was able to tell her group the gist of her part without major problems.	3	4	4	4	4

Group : The Doctors/ The student's initials: R. K.

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	3	3	3	4	4
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	3	3	3	4	4
8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	2	3	4	3	2
9- The student was able to tell her group the gist of her part without major problems.	2	3	3	3	3

Group : The Doctors/ The student's initials: B M

Session 2: Date: __8-04-2014_ 20-04- 2014_ 29-04-2014_11-05-2014_19-05-2014					
6- The student knew how to explore the information on the Internet in English without much help from the tutor.	2	2	2	2	3
7- The student was able to select the right information to fulfill the work plan without much help from the tutor.	2	2	2	2	3

8- The student was able to comprehend her material using reading strategies and available learning aids without much help from the tutor.	1	2	2	2	2
9- The student was able to tell her group the gist of her part without major problems.	1	1	2	2	2

**I- PBL Tutorial Session 3: (Observation as a group) The Shining Stars Students’
initials: M.N; D. H; M. A; N. A; R. K; T.A.**

Session 3: Date: <u>10-04-2014</u> <u>22-04-2014</u> <u>1-05-2014</u> <u>12-05-2014</u> <u>21-05-2014</u>					
10- The students were able to put their work together according to their plan.	3	4	3	4	4
11- Students were able to present and explain their work to the other groups and to the tutor.	3	3	3	4	3
12- Students were able to assess their own work.	1	2	2	3	3
13- Students were able to assess their peers in the other groups and give feedback on other groups’ work.	2	3	2	3	3
14- All group members participated equally and shared in all the previous steps.	2	2	3	3	2

**I- PBL Tutorial Session 3: (Observation as a group) The Doctors Students’
initials: R. A; R. K; B. M; J. K; K. M; B. M; S. M.**

Session 3: Date: __10-04-2014_ 22-04- 2014_ 1-05-2014_12-05-2014_ 21-05-2014					
10- The students were able to put their work together according to their plan.	3	4	3	4	3
11- Students were able to present and explain their work to the other groups and to the tutor.	3	4	4	4	3
12- Students were able to assess their own work.	2	2	2	3	2
13- Students were able to assess their peers in the other groups and give feedback on other groups’ work.	2	3	3	3	3
14- All group members participated equally and shared in all the previous steps.	2	2	2	3	2

Appendix 13: Observation Field Notes

PBL 1: Medical specialties

- Teacher-dependent- learners:

- Students expected more information to be given with the topic; “Is this all?”; they were expecting a plan for their work and to be told exactly what to do? “ Where is the plan?”.
- The first time being given a topic with no sample to follow or a plan, the learners were asking for more information. We explained to them that this is the only information we can provide them with and that they have to come up with their own plan. **Teacher dependent.**

- Problems with planning.

- The tutor explained to them that they can come up with their own suggestions and that different plans were welcome.

- Hail Roses Group started working on the paragraph level. They thought that they were expected to write one paragraph about the topic while the other 2 groups started drafting ideas for a more comprehensive plan including different sections with different specialties.
- Students in the Shining Stars double checked with the teacher; “Is this what you want?” The tutor replied that it is not what she wants but what they want and that all plans are accepted. **Students are used to do what the teacher tells them to do.**
- Students asked the tutor to give them the names of the medical specialties and to translate the names they had in Arabic into English. The tutor replied; Tell me how can you find the word yourself in English. Leave it in Arabic and next time you tell me what the word is in English”, the students smiled and looked comfortable with the tutor’s answer. **Students were teacher dependent.**

- **Creativity:**

- The students approached the problem of medical specialties from different angles in their plans; some students were more concerned with the earning and job opportunities in the market while the other group were concerned with the subjects that they had to study in this specialty. **Creativity** emerged as a natural result of the acceptance of different plans. One group was focused on the specialties that they can study in Hail, their home town. For them that was a key decision to choose their specialty. Others focused on the subjects they have to study and the degree of their difficulty for them. Others were interested in the salary and work opportunities in Saudi Arabia if they choose that specialty.

- **Problems with work assigned outside the classroom**

- The second PBL tutorial was almost a failure because one group almost vanished with the number of absences and those who remained were re-allocated to the two bigger groups which remained. Work was not done; 80% of students did not do their work. **(problems with students’ work outside the classroom)**

- **Learners needed more scaffolding**

- The students were given more guidance on where to look for the information during session 2 of the PBL which was performed in the laboratory; For this particular problem they were oriented to use students' guides (teacher provided them with one) ; university website and other resources www.webMD.com, to know about the jobs in the medical field. (**Scaffolding and mentorship during session 2 in the lab**).
- Learners in PBL tutorial session 2 seemed to be excited about working in the lab. They very quickly put their computers on. The tutor provided them with some websites to use for the problem scenario to help focus the search. These are....

- **Reporting the gist of the student's part in English was a challenge for the weaker students** and they were speaking the two languages together when they got stuck.

- **Group work was seen to be effective** apart from some exceptions ; in the group stronger students got the group to score better (as discussed in the schemes results).

- Students used English and Arabic. Some students were explaining the meaning of some words in Arabic. (**use of English and Arabic**)

- Summarizing was a problem. The tutor asked the learners to take notes.
- Note taking was a problem and showed a problem of comprehension for many students.
- Students were trying to do what the tutor directed them to do. Seemed motivated. Students seemed pleased. The atmosphere looked relaxing.

- Session # 3 of PBL; group presentation. Each student is responsible for a part of the presentation. Students sounded reciting in the Doctors, reading their notes, very attached to their papers- Students had problems with pronunciation and did not sound understanding what they were reading. Not all the learners took part.

PBL 2

Pb scenario 'Is obesity a disease?'

- Students were asked to answer this question but say why.

- The learners in both groups were more for a yes; they started to think why and jot down ideas. Discussion was mainly in Arabic, but when the teacher asked them to report to her what they were doing the spokesperson translated what they were talking about and spoke in English to the teacher. Notes were taken in English and in Arabic.
- Learners were not all speaking, some students were just listening; not everyone took part in the conversation. Learners said they could not make a plan because they did not know much.
- Learners showed that they were familiar with the procedure.

Session 2;

- The teacher suggested some websites where they could find the information in simple English and in concise forms.
- The learners were reminded to read the titles, the topic sentences to scheme and scan for information. (reading strategies to select the information in a shorter time).
- The tutor checked every computer to make sure that the search was done in English.
- Learners were looking for different parts for their plans and were basically looking for different information.
- Learners were directed to use google pictures to understand the meaning of some words, dictionaries online for pronunciation. They were asked to repeat the technical words for pronunciation.
- Learners were asked to take the names of the websites or dictionaries they found useful during their search. Students finalized their plan after the session with what they found.
- Because of this the students sometimes had the same information. The selection of work was used to edit or complete a plan this time.
- Students performed better on the presentation. They used simple notes but they sounded understanding what they were presenting; used more illustrations.
- Both groups agreed obesity is a disease.
- Groups focused on similar issues.
- Assessment was also superficial. 'I think it's good'. 'I learned new things'

PBL 3

- The problem scenario about diabetes seemed challenging for the learners. The learners knew what they had to do, but could not find ideas easily. They were more teacher

dependent than problem scenario 2. The tutor gave them directions on what they could do; brochures with statistics and pictures, papers showing problems and solution.

- Search for the topic of diabetes was demanding at the language level and students had more problems taking notes than the previous problem scenario.
- The students shared the information in Arabic most of the time.
- The search for information helped the learners finalize their original plans.
- **Creativity**; The Shinig Star said they would prepare for a campaign in a mall and would focus on children and diet for prevention of the disease.
- The Doctors planned to see causes and prevention in general. Basically used notes from the Internet.
- Presentation : In both groups, there was an effort to use various resources and do the work, but still the students had language problems to report their ideas and a lot of pronunciation problems in their speaking. They were very attached to their notes.
- Students' assessment of the work was very superficial.' It is good'. 'The voice is not clear' ...
- Feedback from the teacher was given on language.

Tutorial 4

Session 1

- The word bite was explained in the lessons which preceded the PBL tutorial as it was about animal bites. Learners immediately started work on the problem scenario. Fewer questions were asked.
- The learners already knew the procedure of first aid for snake bite, but they also knew different ways so they started negotiating which one is right. They reported that this is what they knew from their families.
- The tutor guided them to make the search for 'WebMD snake bite'.
- Learners helped their classmates sitting next to them and the members rather sat together to do individual work.
- Learners took notes together. The learners wanted to use Google translation, but the teacher encouraged them to use Google pictures to understand some words related to 'first aid kit'.

- Learners used Google translation for some words. They said it is faster. The tutor asked them to try Google pictures like their colleagues.
- The tutor reminded them that they have to know how to pronounce the words correctly in the pronunciation. They now know how to use medical dictionaries on line for pronunciation purposes.
- Learners seemed to enjoy working the problem.
- The doctors brought a first aid kit and tried to demonstrate how to give first aid despite which compensated for language proficiency and every one could follow them. It was fun.
- The Shining Stars also used pictures of the steps and commented on them.
- Feedback was a little bit better than in the previous tutorials. ‘I learnt how to give first aid’; ‘real things help us to understand better’.
- Most learners took part in the presentation in short turns, but English was okay as they seemed to understand what they were saying.

- **PBL 5;**

The problem-scenario; food poisoning

Learners understood the problem; the topic was covered in the lesson. Some learners pointed out it was food poisoning as these were symptoms they studied in the lesson related to food poisoning. Not all the students made the match

- Learners were helping each other.
- The teacher asked them to explain what food poisoning is the reasons before they work on first aid procedures.
- The tutor asked them to use the link ‘<http://kidshealth.org/en/kids/food-poisoning.html>’ and to use the information on webMD.com about first aid.
- The learners were told they could also find their own resources on you tube if they wanted.
- Students searched the websites recommended. They took notes, but sometimes copied too much from the source. Problems of language proficiency sometimes interfered with note taking.

- Learners enjoyed reading and listening on the Website; ‘<http://kidshealth.org/en/kids/food-poisoning.html>’. They said it helped them with pronunciation.
- Presentation was okay. Students used shorter notes compared to PBL 1 and 2, but showed better understanding.
- Work was illustrated with pictures.
- Teacher gave general feedback on language.

Interview Schedule

Appendix 15: Post-experiment final interview with the students

- 2- During this quarter you’ve studied in a different way, using the problem-based learning methodology. How can you assess your learning experience in terms of language and content?
- 3- How did you like the fact that you had to find the information you needed yourself rather than you were given the information by the teacher?
- 4- Do you think you can now plan your work and how to proceed when you have to do when you need to carry out a task by yourself?
- 5- Do you think you can now cope with the problems of comprehension in other courses in a better way?
- 6- Do you think you’ve learnt how to use other resources in addition to Google Translate when you face problems of comprehension?
- 7- Do you think you’ve learnt how to assess your work, know how you can make it better?
- 8- How did you like group work?
- 9- Classify the following skills from 1 to 5. Which one do you think improved the most?
 - Speaking
 - Speaking with others
 - Reading
 - Writing
 - Listening

10- Would you like to study in this way in the future? Why or why not?

Interview transcripts of Students

Appendix 17: Questionnaire 1: Language Learning Autonomy

Questionnaire: Language Learning Autonomy (for the students)	
Session 1: Date: _____	
1- Were you able to comprehend the problem scenario without much help from the tutor? Why or why not?	.....
2- How were you able to set your learning goals? 1- Individually/ 2- with the help of your peers in your group / 3-with the help of the teacher	.....
2- How were you able to identify your gaps of knowledge? 1- Individually/ 2- with the help of your peers in your group / 3-with the help of the teacher	.....
3- How were you able to plan your work? Why or why not? 1- Individually/ 2- with the help of your peers in your group / 3-with the help of the teacher	.....
4- Were you able to share the work with your group members? Why or why not?	.....
5- How did you know how you would find resources which would allow you finding the needed information? Individually/ 2- with the help of your peers in your group / 3-with the help of the teacher?	

.....

Appendix 18: Questionnaire 2

Questionnaire: Language Learning Autonomy (for the students)	
-Session 2: Date: _____	
1- Did you manage to do the work needed and find the requested information? Why or why not?	.....
2- Did you find relevant information to your work? Why or why not?	.....
3- Did you face any problems in finding the necessary information? If yes, what are they?	.....
4- Were you able to understand the content of the documents you found about the topic you needed?	.....
5- How did you cope with problems of comprehension?	.....
6- Were you able to summarize the information you found without major problems? Explain.	.....
7- Do you think you were able to report your summaries to your peers and share the information with them without major problems? Explain.	.....
8- Did you use only the English language throughout the two tutorial sessions with your classmates?	.....
9- Were you able to make decisions using the information you found and share with your peers? Why or why not?	.....
10- Do you think you were able to present and explain your work to the other groups	

and to the tutor? What would you do to improve your presentation?
11- Were you able to use varied resources (videos, pictures... to illustrate your work)? Why or why not?
12- Were you able to understand your peers' feedback?
13- Were you able to understand your tutor's feedback?
14- Were you able to assess your peers in the other groups and give feedback on other groups' work? Why or why not?