

# THÈSE DE DOCTORAT

## ANNEXES

Etudes des influences de musiques et d'odeurs sur les performances exécutives et les ressentis de performances d'adultes jeunes et âgé·e·s

Vers une approche personnalisée des environnements uni et multisensoriels

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# Annexes 1. Etude 1 : Olfactory Habits and Concentration (OHC)

## 1.1 Study items

### ***Olfactory Habits and Concentration Study Items***

*Frequency of odor diffusion in daily life* – I usually diffuse or use perfumes, essential oils, incense, scented candles, and other odorants. (never / rarely / sometimes / often / all the time)

*Devices for odor diffusion in daily life* – I usually use (multiple answers possible) ... (sprays or bottles, eau de toilette, perfumes, perfumed mists, etc. / electric diffusers, essential oils, room fragrances, etc. / scented candles / diffuser sticks / armenian paper / incense / scented cosmetics, body creams and oils, soaps, etc. / other)

*Attention to smells* – I pay particular attention to the smells present in buildings, nature, gardens, streets, etc. (never / rarely / sometimes / often / all the time / not concerned)

*Preferences* – I have one or more particular smells that I like to diffuse or use. (disagree / somewhat in disagreement / neither agree or disagree / somewhat in agreement / agree / strongly agree)

*Places of olfactory diffusion* – I usually diffuse smells (multiple answers possible)... (at home / at my workplace / in my vehicle / other)

*Olfactory categories used in daily life* – The smells I usually diffuse and use are rather (multiple answers possible)... (floral, jasmín, rose, violet, etc. / tropical fruity, mango, pineapple, coconut, etc. / citrus, lemon, orange, grapefruit, etc. / fruity other, red berries, apple, pear, etc. / gourmet, vanilla, chocolate, coffee, caramel, etc. / fresh aromatic, mint, lavender, eucalyptus, camphor, etc. / marine freshness, iodine, marine mix, sea spray, etc. / woody, vetiver, cedar, sandalwood, pine, etc. / spices, cinnamon, cloves, ginger, cardamom, etc. / comforting, cotton flower, white musk, teddy bear, etc. / smoked, chimney fire, winter evenings, etc. / other)

*Ambiances* - When I diffuse smells in a room, it is usually to create (multiple answers possible)... (a relaxing atmosphere, to unwind / a stimulating atmosphere, to wake me up / a recreational atmosphere, to distract / an atmosphere suitable for concentration, to work / a spiritual atmosphere, to pray or to meditate / a therapeutic atmosphere, to heal / an aesthetic atmosphere, to contemplate / a hedonic atmosphere, for pleasure / other)

*Frequency of music diffusion for concentrating* – I usually listen to music during activities that require my concentration. (never / rarely / sometimes / often / all the time)

*Sounds and distraction* – I can easily ignore a sound (music or noise) to concentrate. (disagree / somewhat in disagreement / neither agree or disagree / somewhat in agreement / agree / strongly agree)

*Odors and distraction* – Smells in a room can affect my concentration, whether they are pleasant or unpleasant. (disagree / somewhat in disagreement / neither agree or disagree / somewhat in agreement / agree / strongly agree)



*Frequency of odor diffusion for concentrating* – I usually diffuse or use perfumes, essential oils, incense, scented candles, and other odorants. (never / rarely / sometimes / often / all the time)

*Smell devices for concentrating* – When I diffuse smells during activities that require my concentration, I use (multiple answers possible)... (sprays or bottles, eau de toilette, perfumes, perfumed mists, etc. / electric diffusers, essential oils, room fragrances, etc. / scented candles / diffuser sticks / Armenian paper / incense / scented cosmetics, body creams and oils, soaps, etc. / other)

*Olfactory categories used for concentrating* – The smells I diffuse and use to concentrate are rather (multiple answers possible)... (floral, jasmin, rose, violet, etc. / tropical fruity, mango, pineapple, coconut, etc. / citrus, lemon, orange, grapefruit, etc. / fruity other, red berries, apple, pear, etc. / gourmet, vanilla, chocolate, coffee, caramel, etc. / fresh aromatic, mint, lavender, eucalyptus, camphor, etc. / marine freshness, iodine, marine mix, sea spray, etc. / woody, vetiver, cedar, sandalwood, pine, etc. / spices, cinnamon, cloves, ginger, cardamom, etc. / comforting, cotton flower, white musk, teddy bear, etc. / smoked, chimney fire, winter evenings, etc. / other)

## 1.2 Complete analyses

### **Table 2**

*Comparisons of the Responses of Young Adults, Adults, and Middle-aged Adults to Each Item of the Questionnaire*

Items	$\chi^2$	df	<i>p</i> value
Frequency of odor diffusion in daily life	7.82	2	.02
Attention to smells	5.44	2	.066
Particular preferences	5.48	2	.065
Frequency of music diffusion for concentrating	14.5	2	< .001
Sounds and distraction	0.86	2	.651
Frequency of odor diffusion for concentrating	0.967	2	.617
Odors and distraction	1.31	2	.52
<hr/>			
Devices for odor diffusion in daily life			
Sprays or bottles	3.24	2	.197
Electric diffusers	0.67	2	.716
Scented candles	7.86	2	.02
Armenian paper	0.716	2	.699
Diffuser sticks	6.89	2	.032
Incense	2.78	2	.249
Scented cosmetics	4.43	2	.109
Other	9.97	2	.007
<hr/>			
Places of olfactory diffusion			
At home	11.5	2	.003
At my workplace	8.2	2	.017
In my vehicle	4.18	2	.124
Other	3.81	2	.149
<hr/>			
Olfactory categories used in daily life			
Floral (jasmin, rose, violet, etc.)	2.11	2	.348
Tropical fruity (mango, pineapple, coconut, etc.)	2.83	2	.243
Citrus (lemon, orange, grapefruit, etc.)	6.28	2	.043
Fruity other (red berries, apple, pear, etc.)	2.72	2	.254
Gourmet (vanilla, chocolate, coffee, caramel, etc.)	4.77	2	.092
Fresh aromatic (mint, lavender, eucalyptus, camphor, etc.)	0.257	2	.879
Marine freshness (iodine, marine mix, sea spray, etc.)	3.82	2	.148
Woody (vetiver, cedar, sandalwood, pine, etc.)	0.629	2	.73

Items	$\chi^2$	df	<i>p</i> value
Spices (cinnamon, cloves, ginger, cardamom, etc.)	9.99	2	.007
Comforting (cotton flower, white musk, teddy bear, etc.)	4.93	2	.085
Smoked (chimney fire, winter evenings, etc.)	0.392	2	.822
Other	1.4	2	.497
<hr/>			
Ambiances			
A relaxing atmosphere, to unwind	4.56	2	.102
A stimulating atmosphere, to wake me up	2.85	2	.241
A recreational atmosphere, to distract	2.79	2	.248
An atmosphere suitable for concentration, to work	1.31	2	.52
A spiritual atmosphere, to pray or to meditate	0.238	2	.888
An aesthetic atmosphere, to contemplate	6.18	2	.045
A therapeutic atmosphere, to heal	3.42	2	.18
A hedonic atmosphere, for pleasure	4.77	2	.092
Other	0.783	2	.676
<hr/>			
Smell devices for concentrating			
Sprays or bottles	1.27	2	.53
Electric diffusers	0.678	2	.712
Scented candles	6.22	2	.045
Armenian paper	8.35	2	.015
Diffuser sticks	3.36	2	.187
Incense	0.235	2	.889
Scented cosmetics	2.3	2	.316
Other	2.46	2	.293
<hr/>			
Olfactory categories used for concentrating			
Floral (jasmin, rose, violet, etc.)	0.241	2	.886
Tropical fruity (mango, pineapple, coconut, etc.)	0.592	2	.744
Citrus (lemon, orange, grapefruit, etc.)	1.74	2	.419
Fruity other (red berries, apple, pear, etc.)	2.28	2	.32
Gourmet (vanilla, chocolate, coffee, caramel, etc.)	2.82	2	.244
Fresh aromatic (mint, lavender, eucalyptus, camphor, etc.)	0.58	2	.748

Items	$\chi^2$	df	<i>p</i> value
Marine freshness (iodine, marine mix, sea spray, etc.)	2.83	2	.243
Woody (vetiver, cedar, sandalwood, pine, etc.)	3.13	2	.209
Spices (cinnamon, cloves, ginger, cardamom, etc.)	0.756	2	.685
Comforting (cotton flower, white musk, teddy bear, etc.)	9.42	2	.009
Smoked (chimney fire, winter evenings, etc.)	2.35	2	.309
Other	0.671	2	.715

*Note.* *p* values were obtained from General Linear Models analysis.

**Table 3**

*Post-hoc Analyses of the Responses of Young Adults, Adults, and Middle-aged Adults*

Frequency of odor diffusion in daily life	Diff	SE	<i>p</i> <sub>holm</sub>
Adults-Middle	-0.64	0.24	.026
Adults-Young	-0.13	0.17	.434
Young-Middle	-0.5	0.2	.026
Frequency of music diffusion for concentrating			
Adults-Middle	0.32	0.23	.163
Adults-Young	-0.34	0.17	.082
Young-Middle	0.67	0.19	.002
Devices for odor diffusion in daily life			
Scented candles			
Adults-Middle	-0.21	0.091	.034
Adults-Young	-0.17	0.0637	.018
Young-Middle	-0.042	0.077	.581
Diffuser sticks			
Adults-Middle	-0.16	0.06	.036
Adults-Young	-0.09	0.045	.078
Young-Middle	-0.065	0.05	.21
Other	Diff	SE	<i>p</i> <sub>holm</sub>

Adults-Middle	-0.18	0.043	.675
Adults-Young	0.07	0.031	.045
Young-Middle	-0.087	0.035	.037
<hr/>			
Places of olfactory diffusion			
<hr/>			
At home			
Adults-Middle	-0.26	0.08	.004
Adults-Young	-0.16	0.06	.011
Young-Middle	-0.09	0.06	.143
<hr/>			
At my workplace			
Adults-Middle	0	0.06	.896
Adults-Young	0.08	0.04	.166
Young-Middle	-0.09	0.05	.166
<hr/>			
Olfactory categories used in daily life			
<hr/>			
Citrus (lemon, orange, grapefruit, etc.)			
Adults-Middle	-0.02	0.07	.722
Adults-Young	0.1	0.05	.145
Young-Middle	-0.13	0.0645	.134
<hr/>			
Spices (cinnamon, cloves, ginger, cardamom, etc.)			
Adults-Middle	-0.23	0.07	.007
Adults-Young	-0.06	0.05	.23
Young-Middle	-0.16	0.06	.015
<hr/>			
Ambiances			
<hr/>			
An aesthetic atmosphere, to contemplate			
Adults-Middle	-0.04	0.06	.519
Adults-Young	-0.11	0.04	.062
Young-Middle	0.06	0.05	.423
<hr/>			
Smell devices for concentrating			
<hr/>			
Scented candles			
Adults-Middle	0	0.08	.991
Adults-Young	-0.12	0.06	.135
Young-Middle	0.12	0.06	.152
<hr/>			
Diffuser sticks			
Adults-Middle	-0.09	0.03	.032

Adults-Young	0	0.02	.88
Young-Middle	-0.08	0.03	.015
<hr/>			
Olfactory categories used for concentrating			
<hr/>			
Comforting (cotton flower, white musk, teddy bear, etc.)			
Adults-Middle	-0.11	0.06	.178
Adults-Young	-0.14	0.04	.007
Young-Middle	0.03	0.05	.54
<hr/>			

## Annexes 2. Etude 2 : Musical Habits and Concentration (MHC)

### 2.1 Study items

#### *Musical Habits and Concentration Study Items*

*Frequency* – I usually listen to music during activities that require my concentration.  
(never / rarely / sometimes / often / all the time)

*Music devices* – When I listen to music during activities that require my concentration. I use (multiple answers possible) ... (mobile speaker / earphones / headphones / computer / hi-fi system / radio / other / not concerned)

*Familiarity* – The music I listen to during activities that require my concentration must be familiar to me. (never / rarely / sometimes / often / all the time / not concerned)

*Lyrics* – The music I listen to during activities that require my concentration must be ... (without lyrics / with lyrics / with or without lyrics. it does not matter for me / with or without lyrics only if I do not understand them)

*Emotion and arousal* – The music I listen to during activities that require my concentration are rather (multiple answers possible) ... (*melancholic* / energizing or stimulating / joyful / relaxing or soothing / not concerned)

*Sound volume* – The sound volume of the music I listen to during activities that require my concentration is rather ... (low, so I could hear the surrounding noises / medium, neither too low nor too strong / strong, to cover all the surrounding noises / it depends on the situation / not concerned)

*Musical genre* - Here is a list of several musical genres. To the statement "This musical genre helps me concentrate", please indicate TRUE or FALSE for each musical style according to your current habits (last month). Ambient ; Dub ; Blues ; Electro ; Classic ; Folk ; Disco ;

Hardrock ; Indie ; Jazz ; Lounge ; Metal ; Pop ; Rap ; Raggae ; Rock ; Rumba ; R'n'B ; Tango ; Techno ; Salsa ; Soul ; Swing ; Zouk. (true / false)

## 2.2 Complete analyses

**Table 2**

*Comparison of the Responses of Young and Older Adults to Each Item of the Questionnaire*

Variable	Older adults (%)	Young adults (%)	<i>p</i>	Cohen's <i>d</i>
Lyrics				
With or without unintelligible lyrics	7.55	18.99	.064	-0.34
With or without understandable lyrics	52.83	43.02	.23	0.20
With	9.43	9.23	1	0.01
Without	30.19	28.77	.96	0.03
Arousal				
<i>Melancholic</i>	16.98	28.21	.12	-0.27
Dynamic	28.30	46.37	.02	-0.38
Joyful	15.09	28.21	.064	-0.32
Relaxing	60.38	61.73	.97	-0.03
Volume				
Low	26.41	21.50	.48	0.11
Medium	54.72	45.81	.23	0.18
High	3.77	11.17	.17	-0.28
It depends on the situation	13.21	21.50	.25	-0.22
Devices used				
Diffuse	75.47	23.74	<.001	0.52
Close to the ears	15.09	39.66	<.001	-1.26
Both	7.55	36.59	<.001	-0.75
Familiarity				



Variable	Older adults (%)	Young adults (%)	<i>p</i>	Cohen's <i>d</i>
Not at all	33.96	21.23	.17	0.29
A little	5.66	15.92	.077	-0.33
Moderately	15.09	22.35	.31	-0.19
Often	30.19	27.37	.80	0.06
Always	15.09	12.57	.77	0.07
Frequency				
Rarely	49.06	20.67	<.001	.62
Sometimes	15.09	32.68	<.001	-.42
Often	26.42	36.31	.21	-.21
Always	9.43	10.34	1	-.03
Genre				
Ambient	45.28	53.91	.30	-0.08
Blues	54.72	42.74	.13	0.37
Classical	73.58	70.95	.81	0.20
Disco	11.32	13.69	.79	-0.03
Dub	1.89	10.61	.07	-0.35
Electro	3.71	31.01	.01	-0.37
Folk	20.75	27.09	.42	-0.09
Funk	15.09	20.39	.047	-0.07
Hardrock	3.77	11.73	.13	-0.26
Indie	15.09	28.49	.059	-0.26
Jazz	52.83	57.26	.65	-0.01
Lounge	47.17	43.56	.73	0.14
Metal	1.89	10.61	.076	-0.35
Pop	41.51	48.04	.46	-0.01
Rap	7.55	32.68	<.001	-0.62
Reggae	32.06	39.94	.34	-0.07
Rnb	20.75	29.10	.27	-0.12
Rock	28.30	33.52	.56	-0.04
Rumba	5.66	8.38	.68	-0.07

Variable	Older adults (%)	Young adults (%)	<i>p</i>	Cohen's <i>d</i>
Salsa	3.71	8.67	.42	0.21
Soul	45.28	41.90	.75	0.16
Swing	13.21	10.90	.79	0.13
Tango	18.87	10.61	.13	0.31
Techno	11.32	17.32	.37	-0.11
Zouk	5.66	10.90	.35	-0.16

*Note.* *p* values were obtained from two proportions Z-test analysis.

## Annexes 3. Etude 3 : Music and Odors Characterization for Concentration (MOCC)

### 3.1 Characteristics of the stimuli

**Table 2**

*Characteristics of the Music Tracks Used in the Experiment*

List	Title	Artist (interpreter)	Genre	Tempo	Key
M1	Day One	Stereoclip	Electronica, tropical house	120	G Min
M1	Rej	Meute	Livetronica, orchestral deep house	125	Db Min
M1	Porto	Worakls	Minimal techno, tropical techno	128	C Min
M1	Purple Noise	Boris Breja	Tech-house, minimal techno	125	C Maj
M1	The Music Box	Ave Air	Ambient, focus	118	Ab Min
M1	Hey You	Pink Floyd (Pink Side of the Moon)	Symphonic rock, progressive rock	112	E Min
M1	Waltz No 2. Op. 69 (abbreviated to "Waltz No 2")	Frédéric Chopin (Arthur Rubinstein)	Classical piano, early romantic era	120	B Min
M1	Liebesträume. S. 541: No. 3 in A-Flat Major (abbreviated to "Liesbestraumer")	Franz Liszt (François-René Duchâble)	Classical piano, hungarian classical	130	Ab Maj
M1	L'estro armonico. Concerto pour 2 violons en la mineur. Op. 3 No. 8. RV 522: I. Allegro (abbreviated to "Concerto violon")	Antonio Vivaldi (Camille & Julie Berthollet)	Classical, italian baroque	120	A Min
M1	The Duke	The Dave Brubeck Quartet	Jazz quartet, bebop, jazz	114	C Maj
M1	Freddie Freeloader	Miles Davis	Bebop, jazz fusion	128	Bb Maj
M1	Gary's Theme	Bill Evans (Bill Evans Trio)	Stride, jazz fusion, bebop	120	A Min
M2	Reuf - Instrumental	Nekfeu	Urban, french hip hop	120	Ab Maj
M2	Meine	Daso	Minimal techno, german techno	126	B Min
M2	Sosie	Irène Dresel	French indietronica	125	D Min
M2	Arrival of the Birds	The Cinematic Orchestra (Pierluigi Colangelo)	Acoustic guitar, ambient, soundtrack	130	E Min
M2	Looking for Lester	David Bowie	Rock, glam rock	110	B Min

M2	Deux Arabesques. L. 74. L. 66: Première arabesque (abbreviated to “Deux Arabesques”)	Claude Debussy (Aldo Ciccolini)	French classical piano, post-romantic era	135	E Maj
M2	Water Music Suite. HWV 348-350: Alla Hornpipe (abbreviated to “Water Music Suite”)	George Frideric Handel (Tafelmusik. Jeanne Lamon)	Orchestra, classical, german baroque	120	Db Maj
M2	Things Behind the Sun	Brad Mehldau	Modern jazz piano, contemporary post- bop	116	Db Min
M2	Papa Was A Rolling Stone	Marcus Miller	Jazz funk. electric bass	120	Bb Min
M2	Stormy Weather	Oscar Peterson	Stride. jazz piano, lounge	120	G Maj
M2	Watermelon Man	Herbie Hancock	Jazz fusion, contemporary post- bop	128	F Maj
M2	Busy Office Sound	Silent Knights	None	None	None

**Table 3**

*Characteristics of The Olfactive Molecule Used in the Experiment*

List	Molecule name	Concentration ( $\mu$ L)	Olfactory properties and descriptors
O1	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
O1	(-)- linalool	200/2000	Floral – fruity – sweet – fresh – rose - bergamot
O1	+/- citronellol	300/2000	Floral – rose – sweet – citrus – green – fatty - terpenic
O1	Isoborneol	Solid	Pungent – sharp – campherous
O1	Isovaleraldehyde	200/2000	Ethereal – aldehydic – chocolate – peach – fatty
O1	Thymol	Solid	Herbal – thyme – phenolic – medicinal – campherous
O1	Cis 3 hexenyl acetate	200/2000	Fresh – green – sweet – fruity – apple – pear - melon
O1	Methyl salicylate	300/2000	Sweet – root – beer – wintergreen – aromatic – phenolic – campherous
O1	Ethyl 3 methyl 3 phenylglycidate	300/2000	Sweet – berry – strawberry – honey – floral – rosy
O1	1-octen-3-ol	200/2000	Earthy – fungal – green – oily – fatty – vegetable
O1	Isobutylamine	200/2000	Fishy – cheesy
O1	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable - corn
O1	Ethyl Isobutyrate	100/2000	Sweet – ethereal fruity – pungent – alcoholic – fusel – rummy
O1	Heptanoic acid	200/2000	Cheesy – waxy – sweaty – fermented – pineapple - fruity
O1	No odor	0/2000	None (dipropylene glycol only)
O2	Ethyl maltol	Solid	Sweet – sugar – caramellic – jammy – strawberry
O2	Benzyl acetate	400/2000	Sweet – fruity – floral – fresh
O2	R(+) limonene	200/2000	Sweet – citrus – peely – fresh
O2	(L) menthone	200/2000	Minty – cooling – sweet – peppermint – fresh – campherous – herbal – green - anise

List	Molecule name	Concentration (μL)	Olfactory properties and descriptors
O2	Trans-cinnamaldehyde	200/2000	Sweet – spicy – candy – cinnamon – warm – balsamic
O2	Cis-3-hexenol	200/2000	Green – grassy – melon – rind – pungent
O2	Pentadecalactone	400/2000	Tobacco – coumarinic – heliotrope – powdery – licorice – brown
O2	Skatole	Solid	Animal – fecal – naphthyl – civet
O2	Acetic acid	200/2000	Sharp – pungent – sour – vinegar
O2	Butyl butyryllactate	200/2000	Creamy – dairy – fatty – waxy – milky – cheesy
O2	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
O2	Methyl valeric acid	200/2000	Buttery – creamy – cheesy
O2	1 hexanol	200/2000	Pungent – ethereal – fusel – oily – fruity – alcoholic – sweet – green
O2	16-hexadecanolide	Solid	Sweet – musk – balsamic – amber -animal

### 3.2 Tables of correlation and T-test

*Table of Correlation Between Main Characteristics (Favorability. Pleasantness. Arousal. Familiarity) and GEMS Emotional Characteristics of Young and Older Adults*

Group	Characteristics	Agitated	Mellowed	Overwhelmed	Calm	Feel Like Dancing	Relaxed	Tender	Energetic	Strong	Inspired	Irritated	Joyful	Melancholic	Nostalgic	Dreamy	Sensual	Feeling of transcendence	Sad
Older adults	Pleasantness	-0.67 ( $<.001$ )	0.70 ( $<.001$ )	0.51 (0.011)	0.65 ( $<.001$ )	0.072 (0.739)	0.81 ( $<.001$ )	0.68 ( $<.001$ )	0.22 (0.298)	0.46 (0.025)	0.93 ( $<.001$ )	-0.95 ( $<.001$ )	0.67 ( $<.001$ )	0.64 ( $<.001$ )	0.70 ( $<.001$ )	0.75 ( $<.001$ )	0.80 ( $<.001$ )	0.77 ( $<.001$ )	0.22 (0.304)
	Arousal	0.89 ( $<.001$ )	-0.81 ( $<.001$ )	-0.59 (0.002)	-0.92 ( $<.001$ )	0.68 ( $<.001$ )	-0.82 ( $<.001$ )	-0.91 ( $<.001$ )	0.73 ( $<.001$ )	0.32 (0.124)	-0.57 (0.003)	0.46 (0.022)	0.22 (0.291)	-0.83 ( $<.001$ )	-0.78 ( $<.001$ )	-0.85 ( $<.001$ )	-0.54 (0.006)	-0.19 (0.386)	-0.79 ( $<.001$ )
	Familiarity	-0.54 (0.006)	0.51 (0.01)	0.37 (0.072)	0.52 (0.01)	0.01 (0.963)	0.67 ( $<.001$ )	0.51 (0.011)	0.16 (0.458)	0.37 (0.077)	0.81 ( $<.001$ )	-0.64 ( $<.001$ )	0.61 (0.001)	0.41 (0.046)	0.58 (0.003)	0.57 (0.004)	0.60 (0.002)	0.64 ( $<.001$ )	0.15 (0.478)
	Favorability	-0.93 ( $<.001$ )	0.88 ( $<.001$ )	0.65 ( $<.001$ )	0.93 ( $<.001$ )	-0.39 (0.06)	0.94 ( $<.001$ )	0.93 ( $<.001$ )	-0.29 (0.174)	0.11 (0.603)	0.88 ( $<.001$ )	-0.84 ( $<.001$ )	0.24 (0.261)	0.87 ( $<.001$ )	0.85 ( $<.001$ )	0.94 ( $<.001$ )	0.74 ( $<.001$ )	0.62 (0.001)	0.59 (0.003)
Young adults	Pleasantness	-0.64 ( $<.001$ )	0.72 ( $<.001$ )	0.51 (0.012)	0.67 ( $<.001$ )	-0.036 (0.867)	0.77 ( $<.001$ )	0.73 ( $<.001$ )	-0.15 (0.47)	0.02 (0.922)	0.91 ( $<.001$ )	-0.95 ( $<.001$ )	0.52 (0.009)	0.58 (0.003)	0.64 ( $<.001$ )	0.84 ( $<.001$ )	0.52 (0.009)	0.41 (0.046)	0.49 (0.015)
	Arousal	0.92 ( $<.001$ )	-0.92 ( $<.001$ )	-0.71 ( $<.001$ )	-0.97 ( $<.001$ )	0.73 ( $<.001$ )	-0.93 ( $<.001$ )	-0.95 ( $<.001$ )	0.86 ( $<.001$ )	0.64 ( $<.001$ )	-0.72 ( $<.001$ )	0.48 (0.017)	0.17 (0.439)	-0.81 ( $<.001$ )	-0.76 ( $<.001$ )	-0.83 ( $<.001$ )	-0.13 (0.542)	0.023 (0.914)	-0.80 ( $<.001$ )

Familiarity	-0.46 (0.025)	0.48 (0.019)	0.31 (0.14)	0.53 (0.008)	-0.28 (0.185)	0.51 (0.012)	0.46 (0.022)	-0.43 (0.034)	-0.41 (0.049)	0.48 (0.016)	-0.19 (0.386)	0.12 (0.583)	0.39 (0.062)	0.36 (0.084)	0.53 (0.008)	0.16 (0.467)	0.0037 (0.986)	0.33 (0.119)
Favorability	-0.90 (<.001)	0.92 (<.001)	0.69 (<.001)	0.93 (<.001)	-0.47 (0.02)	0.96 (<.001)	0.95 (<.001)	-0.64 (<.001)	-0.43 (0.038)	0.89 (<.001)	-0.79 (<.001)	0.10 (0.628)	0.79 (<.001)	0.80 (<.001)	0.93 (<.001)	0.31 (0.141)	0.18 (0.403)	0.74 (<.001)

*Note.* Numbers represent Pearson's r. p-values are given in parentheses.

*Table of Correlation Comparisons of Main Characteristics (Favorability. Pleasantness. Arousal. Familiarity) and GEMS Emotional Characteristics Based on the Two age Groups*

Characteristics	Agitated	Mellowed	Overwhelmed	Calm	Feel Like Dancing	Relaxed	Tender	Energetic	Strong	Inspired	Irritated	Joyful	Melancholic	Nostalgic	Dreamy	Sensual	Feeling of transcendence	Sad
Pleasantness	0.27 (0.789)	-0.20 (0.837)	0 (1)	0.18 (0.857)	0.55 (0.584)	0.54 (0.587)	0.51 (0.612)	-1.90 (0.058)	-2.42 (.015)	-0.66 (0.506)	0 (1)	-1.19 (0.233)	-0.49 (0.626)	-0.55 (0.579)	1.26 (0.207)	-2.65 (0.008)	2.97 (0.003)	1.58 (0.112)
Arousal	0.85 (0.396)	-2.35 (0.019)	-1.06 (0.287)	-2.56 (0.010)	0.51 (0.612)	-2.55 (0.011)	-1.55 (0.122)	1.85 (0.064)	2.16 (0.030)	-1.32 (0.186)	0.13 (0.896)	-0.26 (0.791)	0.31 (0.756)	0.25 (0.803)	0.35 (0.729)	2.40 (.016)	-1.09 (0.273)	-0.14 (0.890)
Familiarity	0.54 (0.587)	-0.20 (0.840)	-0.34 (0.730)	0.07 (0.944)	-1.51 (0.130)	-1.26 (0.207)	-0.33 (0.739)	-3.15 (<.01)	-4.17 (<.001)	-3.07 (0.002)	2.87 (<.01)	-2.99 (<.01)	-0.12 (0.904)	-1.45 (0.146)	-0.29 (0.770)	-2.70 (<.01)	-3.82 (<.001)	0.97 (0.330)
Favorability	0.95 (0.344)	-1.08 (0.278)	0.37 (0.712)	0 (1)	-0.50 (0.617)	1.06 (0.290)	0.88 (0.378)	-2.33 (.020)	-2.90 (<.01)	0.23 (0.814)	0.76 (0.446)	0.73 (0.463)	1.33 (0.183)	-0.80 (0.423)	-0.40 (0.685)	3.20 (<.01)	-2.75 (<.01)	1.39 (0.165)

*Note.* Numbers represent Fisher's z. p-values are given in parentheses.

*Table of Correlation Between Main Characteristics (Favorability. Pleasantness. Arousal. Familiarity) and GEOS Emotional Characteristics of Young and Older Adults*

Group	Characteristics	Happiness – Well-being – Pleasantly surprised	Disgusted – Irritated – Unpleasantly surprised	Energic – Invigorated - Clean	Relaxed – Serene - Reassured	Romantic – Desire – In love
Older adults	Pleasantness	0.95 (<.001)	-0.94 (<.001)	0.76 (<.001)	0.95 (<.001)	0.88 (<.001)
	Arousal	-0.45 (0.015)	0.54 (0.003)	0.014 (0.944)	-0.51 (0.005)	-0.61 (<.001)
	Familiarity	0.73 (<.001)	-0.53 (0.003)	0.83 (<.001)	0.66 (<.001)	0.56 (0.001)
	Favorability	0.95 (<.001)	-0.89 (<.001)	0.75 (<.001)	0.96 (<.001)	0.92 (<.001)
Young adults	Pleasantness	0.97 (<.001)	-0.97 (<.001)	0.77 (<.001)	0.96 (<.001)	0.88 (<.001)
	Arousal	-0.64 (<.001)	0.64 (<.001)	-0.17 (0.374)	-0.72 (<.001)	-0.73 (<.001)
	Familiarity	0.71 (<.001)	-0.59 (<.001)	0.79 (<.001)	0.66 (<.001)	0.51 (0.005)
	Favorability	0.96 (<.001)	-0.93 (<.001)	0.70 (<.001)	0.98 (<.001)	0.90 (<.001)

*Note.* Numbers represent Pearson's r. p-values are given in parentheses.



*Table of Correlation Comparisons of Main Characteristics (Favorability. Pleasantness. Arousal. Familiarity) and GEOS Emotional Characteristics Based on the Two age Groups*

Characteristics	Happiness – Well-being – Pleasantly surprised	Disgusted – Irritated – Unpleasantly surprised	Energic – Invigorated - Clean	Relaxed – Serene - Reassured	Romantic – Desire – In love
Pleasantness	1.32 (.185)	1.80 (.072)	0.12 (.902)	0.58 (.562)	0 (1)
Arousal	-1.39 (.164)	0.78 (.434)	-0.94 (.345)	-1.75 (.079)	-1.12 (.264)
Familiarity	-0.21 (.833)	-0.44 (.656)	-0.59 (.553)	0 (1)	-0.36 (.721)
Favorability	-0.580 (.562)	-1.20 (.229)	-0.54 (.591)	-1.79 (.074)	-0.59 (.553)

*Note.* Numbers represent Fisher’s z. p-values are given in parentheses.

*Table of T-test Comparison Between Young and Older Adults for Each Music Extract*

Music	Young adults	Older adults	t	Degree of freedom	p
Arrival of the Birds	2.37 (0.8)	1.95 (1.3)	-1.338	35.3	.189
Concerto violon	0.59 (1.3)	1.37 (1.3)	2.235	52.7	<b>.03</b>
Day One	0.86 (1.5)	0.35 (1.6)	-1.212	48.8	.231
Deux Arabesques	1.86 (1.1)	1.87 (1.5)	0.011	41.6	.991
Freddie Freeloader	1.55 (1.2)	1.57 (1.2)	0.047	50.2	.963
Gary s Theme	1.89 (1.1)	1.99 (1.2)	0.321	49.5	.75
Hey You	0.81 (1.3)	0.72 (1.8)	-0.201	42.4	.842
Liebstraumer	2 (1)	2.2 (1)	0.752	49.8	.456
Looking for Lester	-0.34 (1.6)	-0.16 (1.6)	0.433	50.3	.667
Meine	0.4 (1.1)	0.11 (1.6)	-0.736	40.6	.466
Office Sound	-1.89 (1.6)	-2.31 (1.3)	-1.04	51.9	.303
Papa Was A Rolling Stone	0.78 (1.4)	1.12 (1.3)	0.916	51.4	.364
Porto	0.78 (1.3)	0.5 (1.4)	-0.767	48.8	.447
Purple Noise	-0.11 (1.8)	-0.69 (1.8)	-1.191	52.6	.239

Music	Young adults	Older adults	t	Degree of freedom	p
Rej	0.08 (1.7)	-0.8 (1.3)	-2.183	54.9	<b>.033</b>
Reuf	0.66 (1.2)	0.2 (1.6)	-1.178	42.5	.245
Sosie	0.2 (1.5)	-0.46 (1.3)	-1.735	51.8	.089
Stormy Weather	1.69 (1.1)	1.92 (1.3)	0.675	43.6	.503
The Duke	1.33 (1.3)	1.48 (1.2)	0.465	53.9	.644
The Music Box	2.03 (1.2)	1.83 (1.2)	-0.634	51	.529
Things Behind the Sun	0.77 (1.4)	0.76 (1.5)	-0.031	46.3	.975
Waltz No 2	1.96 (1)	1.67 (1.2)	-0.951	45.3	.346
Water Music Suite	0.93 (1.3)	2.05 (1)	3.528	51.8	<b>.001</b>
Watermelon Man	0.47 (1.6)	1.33 (1.2)	2.228	51.6	<b>.03</b>

*Table of T-test Comparison Between Young and Older Adults for Each Olfactive Molecule*

Olfactory molecules	Young adults	Older adults	t	Degree of freedom	p
(-)-linalool	2.03 (1.2)	1.86 (1.1)	-0.566	53	.574
(L) menthone	1.87 (1.3)	2.06 (1.5)	0.497	45.7	.622

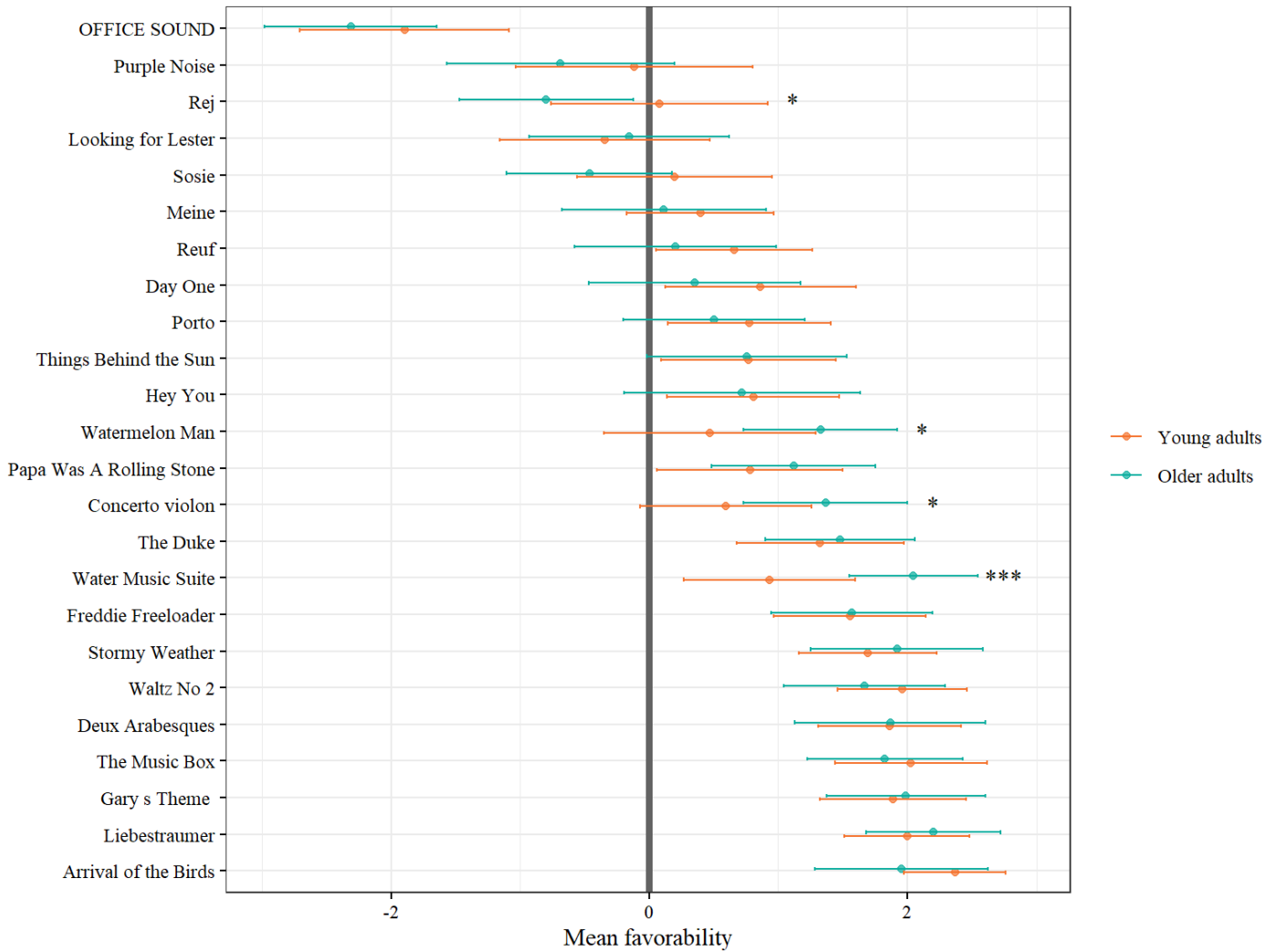
Olfactory molecules	Young adults	Older adults	t	Degree of freedom	p
+ citronellol	1.62 (1.4)	1.6 (1.1)	-0.074	55	.942
1-octen-3-ol	0.64 (1.4)	0.42 (1.3)	-0.633	53.3	.529
1 hexanol	1.55 (1.1)	1.06 (1.4)	-1.362	43.7	.18
16-Hexadecanolide	1.59 (1.4)	1.61 (1.2)	0.057	47	.955
acetic acid	-0.88 (0.9)	-0.83 (0.9)	0.19	48.5	.85
benzyl acetate	1.6 (1.2)	1.54 (1.3)	-0.172	48.6	.864
butyl butyryllactate	-0.04 (1.1)	0.21 (1.1)	0.749	39.5	.458
butyric acid	-1.31 (0.8)	-1.15 (0.8)	0.785	49.2	.436
cis-3-hexenol	1.32 (1.3)	1.15 (1.2)	-0.509	50.5	.613
cis 3 hexenyl acetate	1.42 (1.4)	1.16 (1.5)	-0.671	51.1	.505
dimethyl sulfide	-1.22 (0.9)	-1.06 (0.9)	0.62	48.7	.538
ethyl 3 methyl 3 phenylglycidate	1.5 (1.1)	1.39 (1.3)	-0.327	41.1	.745
ethyl isobutyrate	-0.23 (1.1)	-0.04 (1.6)	0.516	42.2	.609
ethyl maltol	1.5 (1.4)	1.85 (1.3)	0.947	51.3	.348
heptanoic acid	0.08 (1)	0.14 (1.3)	0.193	36.7	.848
isoborneole	0.52 (1.2)	0.62 (1.4)	0.294	45.5	.77

Olfactory molecules	Young adults	Older adults	t	Degree of freedom	p
isobutylamine	-1.27 (1)	-1.42 (0.7)	-0.652	51.9	.517
isovaleraldehyde	-0.23 (1.4)	-0.8 (0.9)	-1.798	53.5	.078
methyl salicylate	0.83 (1.4)	0.42 (1.3)	-1.117	53.8	.269
methyl valeric acid	-1.18 (0.9)	-1 (1.1)	0.656	42.8	.515
No odor	0.91 (1.3)	0.59 (1.3)	-0.857	46.7	.396
pentadecalactone	1.25 (1.4)	1.04 (1.6)	-0.496	46.1	.622
R(+) limonene	2.27 (0.9)	2.44 (1.2)	0.591	43.3	.558
skatole	-0.85 (1.1)	-0.89 (1.3)	-0.121	44	.904
thymol	1.2 (1.3)	1.1 (1.3)	-0.304	51.5	.762
trans-cinnamaldehyde	1.87 (1.2)	1.56 (1.6)	-0.763	42.7	.45
vanilin	2.58 (0.9)	2.34 (1.2)	-0.854	43.3	.398

### 3.3 Figures

**Figure 1**

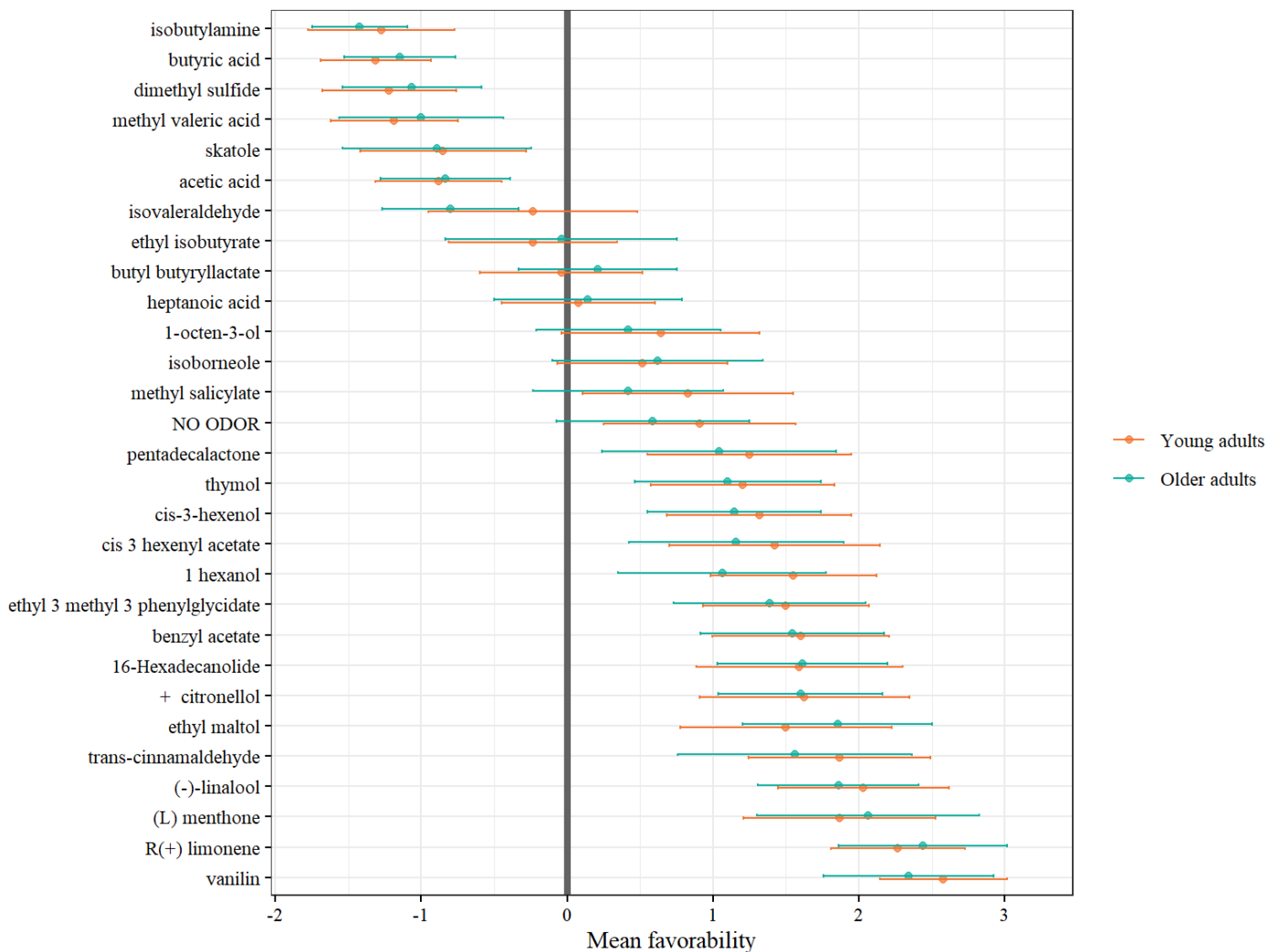
*Mean Perceived Favorability for Each Music Extract in Each Group*



*Note.* Dots represent the mean responses of older (in blue) and younger (in orange) adults. Error bars represent standard deviations. The vertical indicates the zero, and  $p$  values were computed through Student's  $t$ -test comparing young and older adults for each music track (\*\*\*:  $p \leq .001$ ; \*:  $p \leq .05$ ).

**Figure 2**

*Mean Perceived Favorability for Each Olfactive Molecule in Each Group*



*Note.* Dots represent the mean responses of older (in blue) and younger (in orange) adults. Error bars represent standard deviations. The vertical bar indicates zero. and  $p$  values were computed with Student's  $t$ -test comparing young and older adults for each olfactory molecule ( $***p \leq .001$ ;  $*p \leq .05$ ). The use of ratings for the opaque glass bottle named "no odor", filled with dipropylene glycol only, should be considered with caution. Even if dipropylene glycol is odorless, odorant molecules from the other olfactory stimuli could have contaminated the closed container as they were stored together in a refrigerator.





## Annexes 4. Etude 4 : Alternative forms of the Parametric Go/No-Go (PGNG)

### 4.1 Complementary socio-demographic data

**Table 2**

*Sociodemographic Data of Each Sample*

Versions	XYZ	RST	NPV	JQW	FGH	DKL	BCM
Mean age (y.o.. from min to max)	26.81 (18 to 52)	24.83 (18 to 48)	26.9 (18 to 47)	23.62 (18 to 37)	27.08 (18 to 52)	26.08 (18 to 64)	24.8 (18 to 44)
Operating system of the participants	43 Win32 4 MacIntel	42 Win32 9 MacIntel 1 Linux x86_64	39 Win32 9 MacIntel 2 Linux x86_64	43 Win32 4 MacIntel 1 Linux x86_64	45 Win32 5 MacIntel 2 Linux x86_64	40 Win32 8 MacIntel 1 Linux Linux_armv81 Linux_aarch64	43 Win32 6 MacIntel 1 Linux x86_64

### 4.2 Characteristics of the PGNG versions

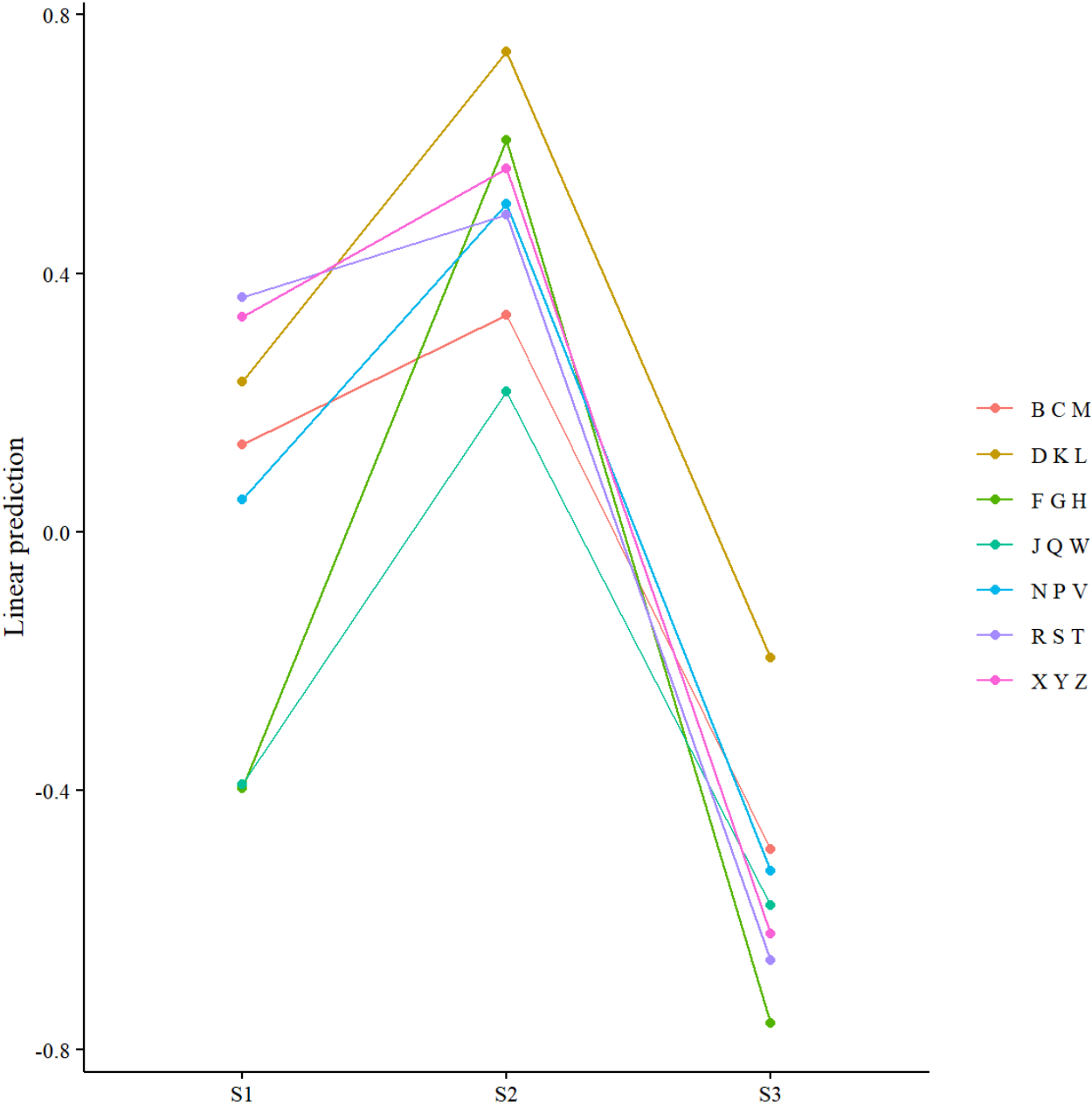
*Table of the Excluded Letters for each PGNG Versions*

BCM	DKL	FGH	JQW	NPV	RST	XYZ
a	a	a	a	a	a	a
e	e	e	e	e	e	e
i	i	i	i	i	i	i
o	o	o	o	o	o	o
u	u	u	u	u	u	u
d	b	y	p	q	y	s

4.3 Figures

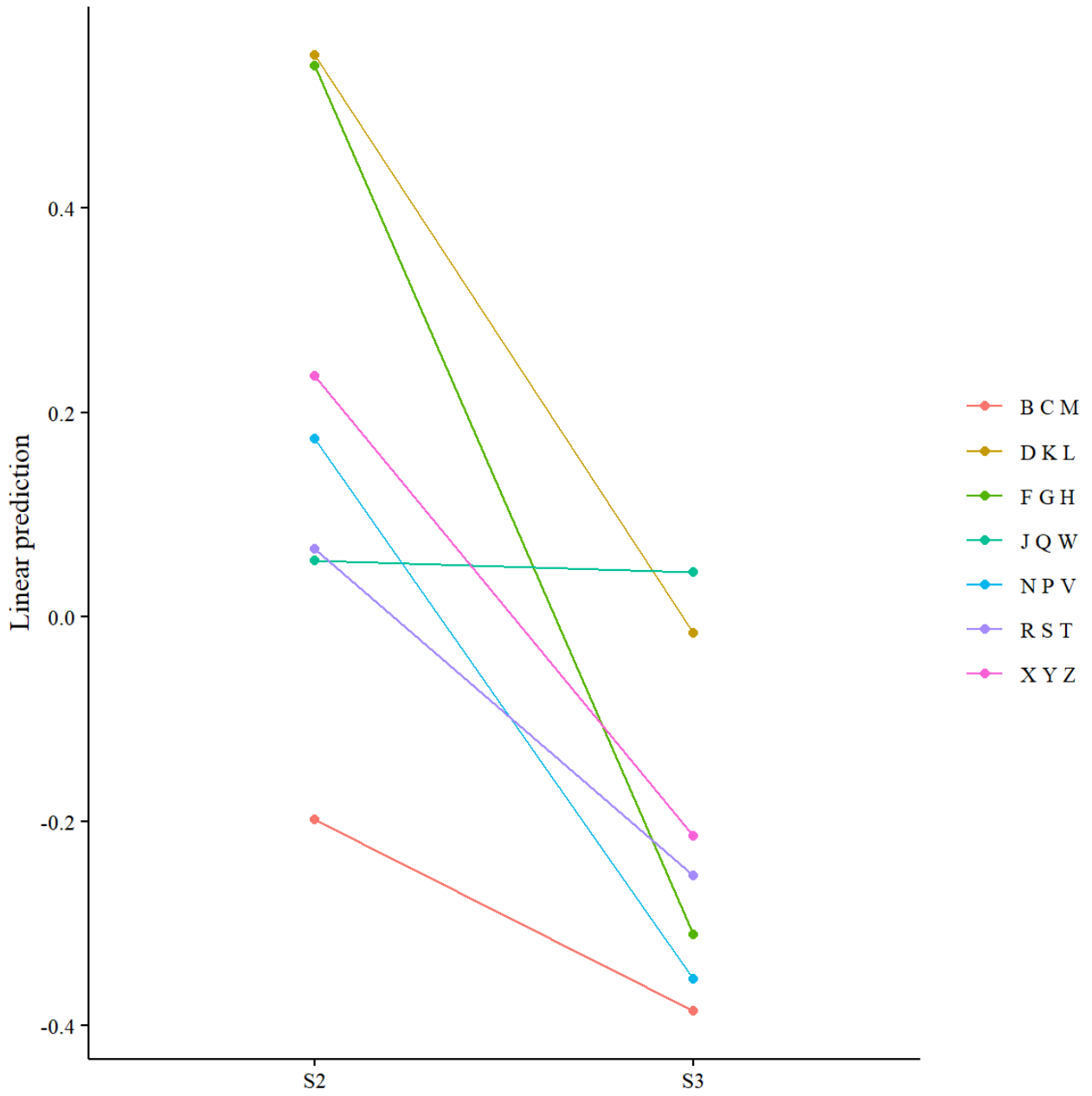
**Figure 2**

*Linear Predictions of the Model of PCT Scores at Each Level for Each PGNG Version*



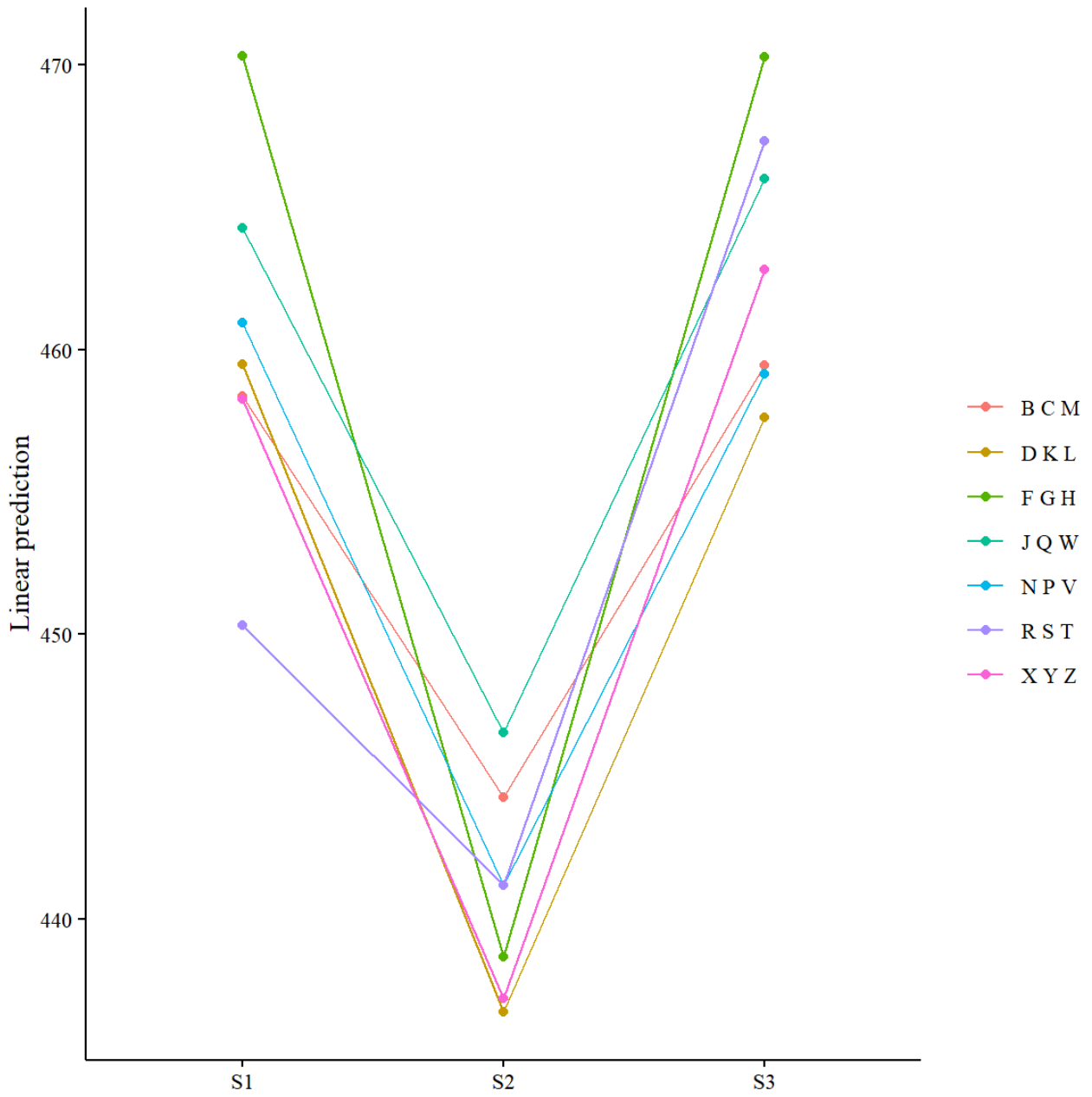
**Figure 3**

*Linear Predictions of the Model of PCI Scores at Each Level for Each PGNG Version*



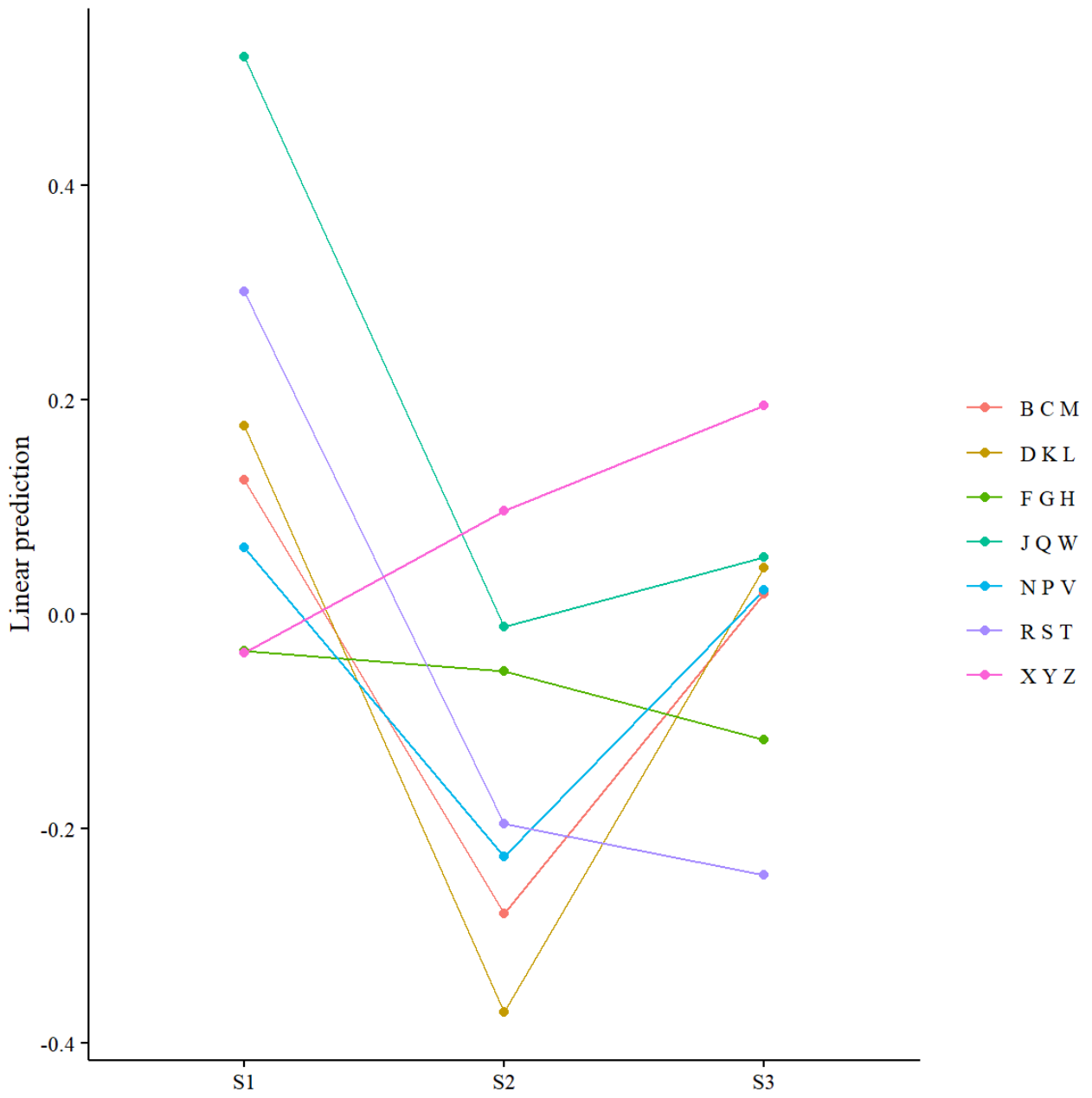
**Figure 4**

*Linear Predictions of RT Scores at Each Level for Each PGNG Version*



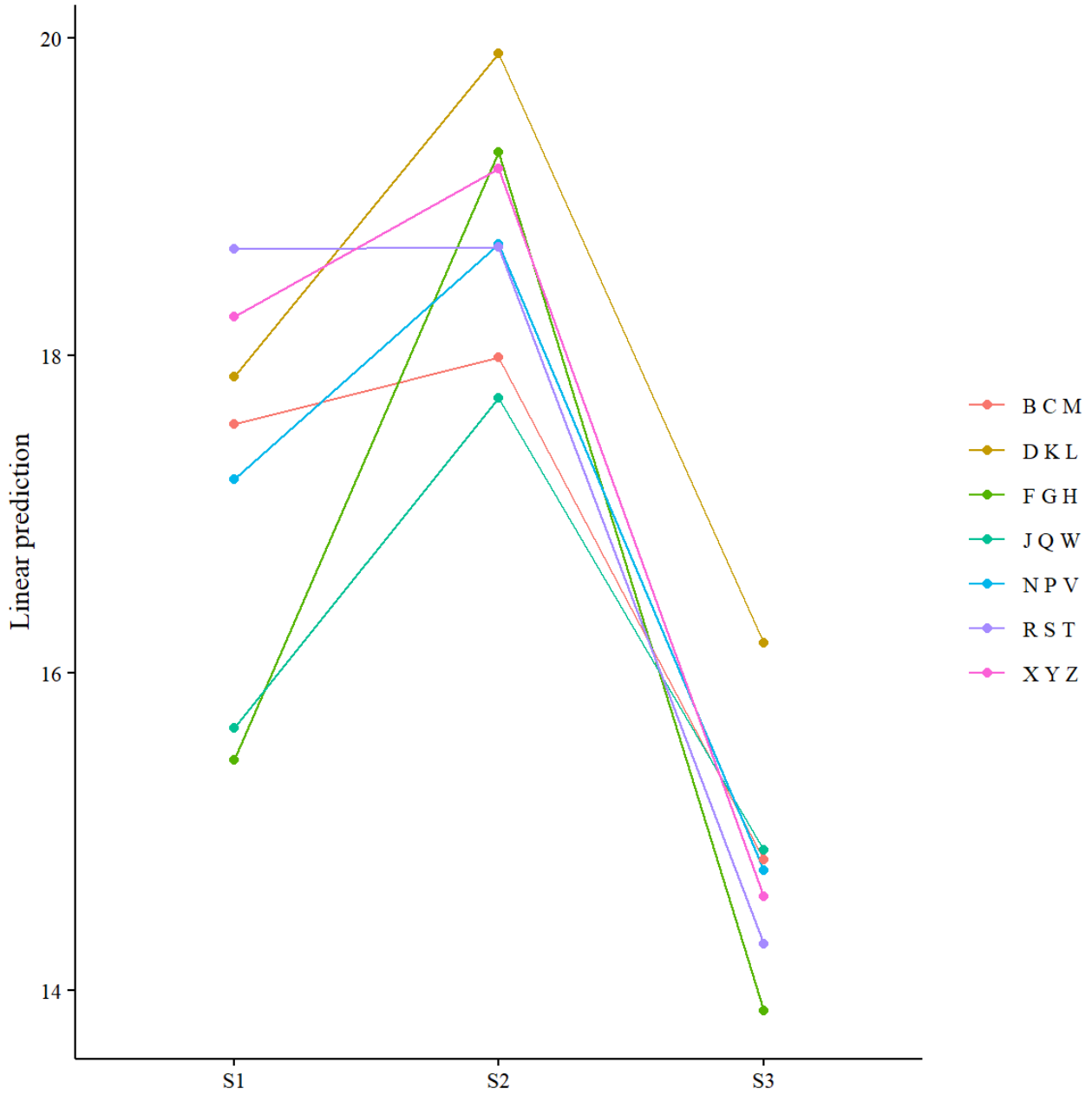
**Figure 5**

*Linear Predictions of the Model of RTCoV Scores at Each Level for Each PGNG Version*



**Figure 6**

*Linear Predictions of the Model of Efficiency Scores at Each Level for Each PGNG Version*



# Annexes 5. Etude 5 : Performances. Odeurs et Musique (POM)

## 5.1 Questionnaires

### *Questionnaire de Pichot*

1. Je manque d'énergie ... (0 / 1 / 2 / 3 / 4)
2. Tout me demande un effort ... (0 / 1 / 2 / 3 / 4)
3. Je me sens faible à certains endroits du corps ... (0 / 1 / 2 / 3 / 4)
4. J'ai les bras ou les jambes lourdes ... (0 / 1 / 2 / 3 / 4)
5. Je me sens fatigué·e sans raison ... (0 / 1 / 2 / 3 / 4)
6. J'ai envie de m'allonger pour me reposer ... (0 / 1 / 2 / 3 / 4)
7. J'ai du mal à me concentrer ... (0 / 1 / 2 / 3 / 4)
8. Je me sens fatigué·e, lourd·e et raide ... (0 / 1 / 2 / 3 / 4)

### *Questionnaire Habitudes Olfactives et Concentration*

*Fréquences de diffusion d'odeurs* – Combien de fois diffusez-vous des odeurs lorsque vous effectuez une tâche pour laquelle vous devez vous concentrer ? (jamais / rarement / parfois / souvent / tout le temps)

### *Questionnaire Habitudes Musicales et Concentration*

*Fréquences de diffusion de musiques* – Combien de fois diffusez-vous des musiques lorsque vous effectuez une tâche pour laquelle vous devez vous concentrer ? (jamais / rarement / parfois / souvent / tout le temps)

*Fréquences de pratique de musicale – À quelle fréquence pratiquez-vous la musique ?*

(jamais / rarement / parfois / souvent / tout le temps)

***Items d'Extraversion du Revised Eysenck Personality Questionnaire – Abbreviated (EPQR-A)***

1. Êtes-vous une personne bavarde ? (oui / non) – *La réponse « oui » entraîne +1 point en score total d'extraversion.*
2. Êtes-vous plutôt vif/vive ? (oui / non) – *La réponse « oui » entraîne +1 point en score total d'extraversion.*
3. Pouvez-vous facilement mettre une bonne ambiance dans une fête plutôt ennuyeuse ? (oui / non) – *La réponse « oui » entraîne +1 point en score total d'extraversion.*
4. Avez-vous tendance à vous effacer lors d'occasions sociales ? (oui / non) – *La réponse « non » entraîne +1 point en score total d'extraversion.*
5. Êtes-vous plutôt calme lorsque vous êtes avec d'autres personnes ? (oui / non) – *La réponse « non » entraîne +1 point en score total d'extraversion.*
6. Les autres personnes vous considèrent-elles comme très vivant.e ? (oui / non) – *La réponse « oui » entraîne +1 point en score total d'extraversion.*

***Questionnaire de Ressentis de Performances***

*Fatigue* – Pendant la tâche, je me suis senti.e fatigué.e et mon esprit était vide ou mes pensées étaient ailleurs. (-3 / -2 / -1 / 0 / 1 / 2 / 3)

*Concentration* – Je me suis concentré.e sur la tâche à accomplir pendant que je l'exécutais. (-3 / -2 / -1 / 0 / 1 / 2 / 3)



*Distraction sensorielle* – Pendant la tâche, je pensais à ce qui m'entourait dans la pièce (objets, personnes, sons, température, etc.) ou aux sensations que je ressentais dans mon corps (faim, soif, douleur, etc.). (-3 / -2 / -1 / 0 / 1 / 2 / 3)

*Motivation* – Je suis resté·e motivé·e pour faire la tâche du début à la fin. (-3 / -2 / -1 / 0 / 1 / 2 / 3)

*Contrôle* – Je me suis senti maître de la situation du début à la fin de la tâche. (-3 / -2 / -1 / 0 / 1 / 2 / 3)

*Compétence* – Je me suis senti·e compétent·e pour accomplir la tâche du début à la fin. (-3 / -2 / -1 / 0 / 1 / 2 / 3)

## 5.2 Stimuli personnalisés par participant·e

**Table 1**

*Caractéristiques des Musiques Utilisées dans l'Etude POM pour les Sous-groupes Personnalisés*

Participant·e·s	Titre	Artiste (interprète)	Genre	Tempo	Clé
YP01	TVA (From "Loki"/Score)	Natalie Holt	Bande originale de films	108	C#/D <sup>b</sup> Majo
	Gary's Theme*	Bill Evans (Bill Evans Trio)	Stride, jazz fusion, bebop	120	A Min
YP02	The Piano Duet	Tim Burton's Corpse Bride Soundtrack (Gavyn Wright. chef d'orchestre)	Bande originale de films	134	D Min
	Scotland the brave	The Drums & Pipes. Band of the Gordon Highlanders	Celtique, fanfare de cornemuses, cornemuse, fanfare militaire	180	G#/A <sup>b</sup> Minor
YP03	Miroirs : III. Une barque sur l'océan	Maurice Ravel (André Laplante)	Classique, néoclassicisme, ère post-romantique, impressionnisme	68	D Maj
	Die Walküre	Richard Wagner (Tonhalle-Orchester Zürich)	Classique, romantisme allemand, opéra allemand, fin de l'ère romantique	91	G Maj
YP04	Les jours heureux	Ben Mazué	Indie pop française, pop française	115	A Min

Participant·e·s	Titre	Artiste (interprète)	Genre	Tempo	Clé
YP05	Concerto pour violon et orgue en ré mineur. RV 541: I. Allegro	Antonio Vivaldi (Vincent Boucher)	Classique, baroque italien, baroque	106	D Min
	No Greater Love (Live At The Pershing. Chicago. 1958)	Ahmad Jamal Trio	Cool jazz, jazz piano, jazz. bebop	142	B Min
	Bonjour	Vald	Troll rap, rap français, horrorcore	126	D#/Eb Major
YP06	Lily's Theme (From "Harry Potter And The Deathly Hallows. Pt. 2")	Geek Music (Alexandre Desplat)	Bande originale de films	75	F#/Gb Major
	Losing It	FISHER	House, house australienne	125	D Maj
YP07	The Music Box*	Ave Air	Ambient, focus	118	Ab Min
	Looking for Lester*	David Bowie	Rock. glam rock	110	B Min
YP08	Ala	Joep Beving	Composition ambient, néo-classique	80	A#/Bb Major
	Sosie*	Irène Dresel	Indietronica française	125	D Min
YP09	Secunda	Jeremy Soule	Musique de jeu vidéo, bande sonore orchestrale		
	Looking for Lester*	David Bowie	Rock, glam rock	110	B Min
YP10	You & Me	Peder Bjaerum Helland	New age. atmosphere	120	C Maj
	Good for Too Long	Deaf Election	Death metal instrumental, death metal norvégien	100	A Maj
YP11	What Am I	Why Don't We	Boy band. pop	164	C Min
	Dance	Suicide	Rock expérimental, no wave, synth punk, noise rock	93	B Maj
YP12	Arrival of the Birds*	The Cinematic Orchestra (Pierluigi Colangelo)	Guitare acoustique, ambient, bande originale de film	130	E Min
	Purple Noise*	Boris Breja	Tech-house, techno minimale	125	C Maj
YP13	Primavera	Ludovico Einaudi (Chris Snelling)	Composition ambient, néo-classique	134	C Min
	Dead Silence (Main Titles)	Charlie Clouser	Bande originale de films	126	C#/Db Minor
YP14	Nightcall	Kavinsky	Filter house	91	A Min
	Psychosocial	Slipknot	Rap metal, metal alternatif, nu metal, rock	135	D Maj

Participant·e·s	Titre	Artiste (interprète)	Genre	Tempo	Clé
YP15	Bagatelle in A Minor. WoO 59 'Für Elise	Ludwig van Beethoven (Paul Lewis)	Romantisme allemand, début de l'ère romantique, classique	122	A Min
	Meine*	Daso	Minimal techno, techno allemande	126	B Min
OP01	Piano Sonata No. 14 in C sharp minor. Op 27. No. 2. Adagio Sostenuto "Moonlight Sonata"	Ludwig van Beethoven (Alessandro De Lucci)	Romantisme allemand, début de l'ère romantique, classique	165	C#/Db Minor
	Cosmic Girl	Jamiroquai (Dimitri from Paris Remix)	Dance pop	120	C#/Db Minor
OP02	Metamorphosis 2	Philip Glass	Composition ambient, minimalisme, classique contemporain américain	116	A Min
	Porto*	Worakls	Techno minimale. techno tropicale	128	C Min
OP03	May It Be	Enya	Middle earth, celtique, pop opératique	81	A Maj
	Looking for Lester*	David Bowie	Rock. glam rock	110	B Min
OP04	La fontaine de guérison : Musique douce	Ensemble de Musique Zen Relaxante	Zen	90	E Maj
	Purple Noise*	Boris Breja	Tech-house, techno minimale	125	C Maj
OP05	Mortel	Fishbach	Synthpop française, indietronica française, indie pop, nouvelle chanson française	96	F Min
	Looking for Lester*	David Bowie	Rock, glam rock	110	B Min
OP06	Golden Light (Radio Edit)	Peder Bjærum Helland	New age, atmosphere	68	C Min
	Good for Too Long	Deaf Election	Death metal instrumental, death metal norvégien	100	A Maj
OP07	The Music Box*	Ave Air	Ambient, focus	118	Ab Min
	Meteora	Moonwalk	Melodic techno, nu disco, électronique	124	E Min
OP08	The Music Box*	Ave Air	Ambient, focus	118	Ab Min
	Sosie*	Irène Dresel	Indietronica française	125	D Min
OP09	Gnossiennes: No. 1. Lent	Erik Satie (Stéphane Blet)	Avant-garde, piano classique français, impressionnisme, ère	126	F Min

Participant·e·s	Titre	Artiste (interprète)	Genre	Tempo	Clé
			postromantique, début de l'ère classique moderne		
	<b>Will the Circle be Unbroken</b>	<b>The Country Dance Kings (Monroe Brothers)</b>	<b>Danseband, country road</b>	<b>187</b>	<b>A Maj</b>
OP10	The Four Seasons. Op. 8 L'estate "Summer": III. Presto	Antonio Vivaldi (New York Philharmonic)	Classique, baroque italien. Baroque	80	C Min
	<b>Rip &amp; Tear</b>	<b>Mick Gordon</b>	<b>Electronique djent, musique de jeu vidéo</b>	<b>108</b>	<b>A Maj</b>
OP11	Blue Jeans (Piano Instrumental Version)	David Kilgallon	Piano, Pop	114	D#/Eb Major
	<b>Right Here. Right Now (Full Version)</b>	<b>Fatboy Slim</b>	<b>Big beat, électronique</b>	<b>125</b>	<b>G Maj</b>
OP12	Leaving The Cave	Lauge	Organic ambient nordique. Psychill	80	C#/Db Major
	<b>Detention Center</b>	<b>Micropoint</b>	<b>Speedcore, Tekno, techno hardcore</b>	<b>149</b>	<b>G Maj</b>
OP13	12 Notations pour piano : III Assez lent	David Fray (Pierre Boulez)	Piano classique français, Sérialisme, jazz moderne précoce, avant-garde	77	A#/Bb Major
	<b>Rip &amp; Tear</b>	<b>Mick Gordon</b>	<b>Electronique djent, musique de jeu vidéo</b>	<b>108</b>	<b>A Maj</b>
OP14	Sea Waves (Sounds of Nature)	Relaxation Sounds of Nature Relaxing Guitar Music Specialists	New age	130	C Maj
	<b>Rip &amp; Tear</b>	<b>Mick Gordon</b>	<b>Electronique djent, musique de jeu vidéo</b>	<b>108</b>	<b>A Maj</b>
OP15	Main Title (From "Braveheart" Soundtrack)	James Horner	Bande originale de films	116	C Maj
	<b>Sosie*</b>	<b>Irène Dresel</b>	<b>French indietronica</b>	<b>125</b>	<b>D Min</b>

*Note.* Les lignes rouges représentent les musiques considérées comme défavorables pour se concentrer pour chaque participant·e. Les astérisques désignent les musiques qui appartiennent à la playlist musicale de l'étude MOCC.

**Table 2***Caractéristiques des Odorants Utilisés dans l'Etude POM pour les Sous-groupes Personnalisés*

Participant·e·s	Odorant	Concentration (µL)	Descripteurs
YP01	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
	Isobutylamine	200/2000	Fishy – cheesy
YP02	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
	Isobutylamine	200/2000	Fishy – cheesy
YP03	R(+) limonene	200/2000	Sweet – citrus – peely – fresh
	Isobutylamine	200/2000	Fishy – cheesy
YP04	Ethyl maltol	Solid	Sweet – sugar – caramellic – jammy – strawberry
	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
YP05	Ethyl maltol	Solid	Sweet – sugar – caramellic – jammy – strawberry
	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable – corn
YP06	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
	Methyl valeric acid	200/2000	Buttery – creamy – cheesy
YP07	Trans-cinnamaldehyde	200/2000	Sweet – spicy – candy – cinnamon – warm – balsamic
	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
YP08	R(+) limonene	200/2000	Sweet – citrus – peely – fresh
	Isobutylamine	200/2000	Fishy – cheesy
YP09	Trans-cinnamaldehyde	200/2000	Sweet – spicy – candy – cinnamon – warm – balsamic
	Isobutylamine	200/2000	Fishy – cheesy
YP10	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
	Methyl valeric acid	200/2000	Buttery – creamy – cheesy
YP11	(L) menthone	200/2000	Minty – cooling – sweet – peppermint – fresh – camphorous – herbal – green – anise
	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
YP12	Ethyl maltol	Solid	Sweet – sugar – caramellic – jammy – strawberry
	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
YP13	R(+) limonene	200/2000	Sweet – citrus – peely – fresh
	Methyl valeric acid	200/2000	Buttery – creamy – cheesy
YP14	Trans-cinnamaldehyde	200/2000	Sweet – spicy – candy – cinnamon – warm – balsamic

Participant	Odorant	Concentration (µL)	Descripteurs
YP15	Skatole	Solid	Animal – fecal – naphthyl – civet
	R(+) limonene	200/2000	Sweet – critus – peely – fresh
OP01	Skatole	Solid	Animal – fecal – naphthyl – civet
	Trans-cinnamaldehyde	200/2000	Sweet – spicy – candy – cinnamon – warm – balsamic
OP02	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
	(L) menthone	200/2000	Minty – cooling – sweet – peppermint – fresh – campherous – herbal – green - anise
OP03	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable - corn
	Ethyl maltol	Solid	Sweet – sugar – caramellic – jammy – strawberry
OP04	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable - corn
	R(+) limonene	200/2000	Sweet – critus – peely – fresh
OP05	Skatole	Solid	Animal – fecal – naphthyl – civet
	(L) menthone	200/2000	Minty – cooling – sweet – peppermint – fresh – campherous – herbal – green - anise
OP06	Isobutylamine	200/2000	Fishy – cheesy
	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
OP07	Skatole	Solid	Animal – fecal – naphthyl – civet
	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
OP08	Skatole	Solid	Animal – fecal – naphthyl – civet
	R(+) limonene	200/2000	Sweet – critus – peely – fresh
OP09	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable - corn
	(L) menthone	200/2000	Minty – cooling – sweet – peppermint – fresh – campherous – herbal – green - anise
OP10	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable - corn
	Vanillin	Solid	Vanilla – sweet – balsamic – phenolic
OP11	(-)- linalool	200/2000	Floral – fruity – sweet – fresh – rose - bergamot

Participant·e·s	Odorant	Concentration (µL)	Descripteurs
OP12	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
	(-)- linalool	200/2000	Floral – fruity – sweet – fresh – rose - bergamot
	Isobutylamine	200/2000	Fishy – cheesy
OP13	(-)- linalool	200/2000	Floral – fruity – sweet – fresh – rose - bergamot
	Dimethyl Sulfide	50/2000	Sulfurous – creamy – tomato – fishy – seafood – berry – fruity – vegetable - corn
OP14	(L) menthone	200/2000	Minty – cooling – sweet – peppermint – fresh – campherous – herbal – green - anise
	Butyric Acid	200/2000	Acidic – sour – cheesy – dairy – creamy – fruity
OP15	R(+) limonene	200/2000	Sweet – citrus – peely – fresh
	Isobutylamine	200/2000	Fishy – cheesy

*Note.* Les lignes rouges représentent les odorants considérés comme défavorables pour se concentrer pour chaque participant·e.