

This electronic thesis or dissertation has been downloaded from the King's Research Portal at <https://kclpure.kcl.ac.uk/portal/>



Using gamification principles to initiate and sustain second language learning directed motivational currents

Aljasir, Tamim

Awarding institution:
King's College London

The copyright of this thesis rests with the author and no quotation from it or information derived from it may be published without proper acknowledgement.

END USER LICENCE AGREEMENT



Unless another licence is stated on the immediately following page this work is licensed

under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International

licence. <https://creativecommons.org/licenses/by-nc-nd/4.0/>

You are free to copy, distribute and transmit the work

Under the following conditions:

- Attribution: You must attribute the work in the manner specified by the author (but not in any way that suggests that they endorse you or your use of the work).
- Non Commercial: You may not use this work for commercial purposes.
- No Derivative Works - You may not alter, transform, or build upon this work.

Any of these conditions can be waived if you receive permission from the author. Your fair dealings and other rights are in no way affected by the above.

Take down policy

If you believe that this document breaches copyright please contact librarypure@kcl.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.

**Using gamification principles to initiate and
sustain second language learning directed
motivational currents**

Tamim Aljasir

**A Thesis Submitted In Fulfilment Of The Requirements For A
PhD Degree At King's College London**

School of Social Science and Public Policy

Department of Education and Professional Studies

King's College, London

July 2021

Abstract

This mixed methods study tests whether L2 motivation among university-level students could be raised by implementing an eight-week educational intervention based on the directed motivational current (DMC) theory and the concept of gamification, thus forming a gamified directed motivational current (GDMC) framework.

Although DMC theory was first introduced in 2013 as a promising construct for understanding second language (L2) motivation (Muir and Dörnyei, 2013), prior to this research there was no practical framework developed that is grounded in the context of L2 classrooms. Gamification has an apparent and immediate effect on students' behaviour and engagement in real-world classrooms, yet lacks an underpinning theoretical base from motivation theory. Accordingly, I argue that game design principles from the field of gamification may serve as an appropriate internal structure to initiate DMCs in a language classroom.

This study examined the use of points and leaderboards to form a practical framework for implementing DMC theory and thus creating directed motivational currents in an L2 classroom. My goal was to observe and analyse the process of implementing the GDMC intervention to identify the temporal and dynamic effects of the intervention on students' motivation and the GDMC characteristics (i.e., components, conditions, and triggers).

The GDMC intervention was presented to the participants ($n = 100$) as a classroom contest consisting of a series of gamified weekly activities. Participants were divided into three groups. The GDMC intervention was implemented with the first group. The second group was exposed to the weekly activities but not the gamification elements. The third was the control group, with which no treatment was applied. To examine the temporal aspect of motivation, students completed three rounds of motivation assessment

questionnaires at the beginning, middle, and end of the intervention. Also, after each weekly activity, each student marked his motivation level on a simple motivation-tracking graph. To examine the dynamic aspect of motivation, i.e., motivation as it manifested in classroom interactions, I conducted 11 focus group interviews with volunteer participants from the two experimental groups. Collected data were analysed using SPSS, Excel, and NVivo software respectively.

The quantitative results show that the GDMC was able to initiate and sustain a consistently rising group motivational current in treatment level 1. The qualitative results further indicated that the characteristics of the motivational current created by the GDMC considerably differed from those of DMC. Namely, the motivational elements in the GDMC were perceived to have different motivational values and roles. The focus group data suggest that elements such as predefined gamified proximal goals, competition, and enjoyment are essential for creating a playful learning experience and thus operationalising DMC theory in an L2 classroom setting.

The study lends substantial support to the possibility of operationalising DMC theory in L2 classroom settings through game design elements (i.e., the GDMC).

Table of Contents

ABSTRACT	2
TABLE OF CONTENTS	4
TABLE OF FIGURES	10
TABLE OF TABLES	11
ACKNOWLEDGEMENTS	14
ABBREVIATIONS	15
CHAPTER 1 INTRODUCTION	16
1.1 INTRODUCTION.....	16
1.2 FOCUS OF THE STUDY.....	16
1.3 THE STUDY’S CONTEXT: PROBLEMATISING THE USE OF ESP TO RAISE STUDENTS’ MOTIVATION IN SAUDI ARABIAN HIGHER EDUCATION.....	17
1.4 THE STUDY’S AIMS AND CONTRIBUTIONS.....	25
1.5 THE RESEARCH QUESTIONS	27
1.6 THESIS STRUCTURE AND CHAPTERS OUTLINE.....	28
CHAPTER 2 LITERATURE REVIEW	30
2.1 INTRODUCTION.....	30
2.2 L2 MOTIVATION CONCEPTUALISATION AND RESEARCH APPROACHES: THE EMERGENCE OF THE THEORY OF DIRECTED MOTIVATIONAL CURRENTS	31
2.2.1 L2 motivation theory research approach: From individual differences to dynamic systems.....	31
2.2.2 Conceptualising L2 motivation as a dynamic system	35
2.2.3 The main problem with a CDS research approach to L2 motivation..	38

2.3 DIRECTED MOTIVATIONAL CURRENTS.....	41
2.3.1 DMC components	44
2.3.2 Conditions for DMC initiation	48
2.3.3 Applying DMCs in L2 learning contexts: Group DMCs.....	50
2.3.4 Empirical validation and the need for a practical DMC framework for real-world applications	52
2.4 GAMIFICATION.....	57
2.4.1 Defining gamification.....	57
2.4.2 Three areas of research in gamification: Gamification in education, motivation theory, and gamification design elements in education	59
2.5 INTEGRATING THE THEORETICAL FRAMEWORK FOR MEANINGFUL GAMIFICATION AND DMC THEORY OF MOTIVATION: A GAMIFIED DIRECTED MOTIVATIONAL CURRENT	74
2.5.1 The gamified directed motivational current	74
2.5.2 Features of an effective GDMC-based focused intervention that aims to operationalise DMC theory in an L2 classroom context	78
2.6 JUSTIFYING THE CURRENT STUDY	90
CHAPTER 3 METHODOLOGY.....	92
3.1 INTRODUCTION.....	92
3.2 MIXED-METHODS RESEARCH APPROACH	93
3.3 THE STUDY'S CONTEXT AND PARTICIPANTS	97
3.4 ETHICAL CONSIDERATIONS	98
3.5 RESEARCH DESIGN: EDUCATIONAL INTERVENTION	100
3.6 DESIGN RATIONAL FOR THE CONTEST AND THE ACTIVITIES	118
3.7 DATA-COLLECTION INSTRUMENTS.....	123

3.7.1 Questionnaires	124
3.7.2 Focus group interviews.....	128
3.7.3 Self-plotted motivation-tracking graphs.....	131
3.7.4 Validity and reliability of data-collection methods	132
3.8 COLLECTED DATA AND DATA PREPARATION.....	137
3.9 CHAPTER SUMMARY	140
CHAPTER 4 QUANTITATIVE DATA ANALYSIS AND FINDINGS.....	141
4.1 INTRODUCTION.....	141
4.2 QUANTITATIVE DATA ANALYSIS OUTLINE	141
4.2.1 Data screening and cleaning	142
4.2.2 Data analysis procedures	143
4.3 FINDINGS OF THE FIRST DIMENSION	148
4.3.1 First dimension effect in R1	148
4.3.2 First dimension effect in R2	150
4.3.3 First dimension effect in R3	152
4.4 FINDINGS ON THE SECOND DIMENSION.....	155
4.4.1 Second dimension effect in R1.....	155
4.4.2 Second dimension effect in R2.....	156
4.4.3 Second dimension effect in R3.....	157
4.5 THE TREATMENT'S OVERALL EFFECTS ON THE STUDENTS' MOTIVATIONAL LEVELS	
158	
4.5.1 Overall treatment effect in R1.....	159
4.5.2 Overall treatment effect in R2.....	159
4.5.3 Overall treatment effect in R3.....	159

4.6 THE EFFECT OF TREATMENT LEVEL 1 ON STUDENTS' OVERALL MOTIVATION ACROSS R1, R2, AND R3.....	161
4.7 SELF-PLOTTED MOTIVATION-TRACKING GRAPHS	163
4.7.1 Motivation-tracking graphs for treatment level 1 (classes G104 and G106).....	165
4.7.2 Motivation-tracking graph for Treatment Level 2 (class G103)	166
4.7.3 Motivation-tracking graph for control group (class G102).....	167
4.7.4 Motivation-tracking graphs conclusion	168
CHAPTER 5 QUALITATIVE DATA ANALYSIS AND FINDINGS	170
5.1 INTRODUCTION.....	170
5.2 FIRST STAGE OF CODING, INTER-RATER RELIABILITY AND RESULTS OVERVIEW	170
5.3 SECOND STAGE CODING: THEMATIC ANALYSIS	183
5.3.1 Theme 1: Structured design of motivation	186
5.3.2 Theme 2: Playful learning experience.....	197
5.3.3 Theme 3: Context sensitivity	206
5.4 DEMOTIVATIONAL ELEMENTS AND LIMITATIONS	211
5.5 SUMMARY.....	214
CHAPTER 6 DISCUSSION	216
6.1 INTRODUCTION.....	216
6.2 OUTLINE OF THE MAIN POINTS FOR DISCUSSION.....	216
6.3 THE TEMPORAL ASPECTS OF MOTIVATION: HOW DID STUDENTS' L2 MOTIVATIONS FLUCTUATE DURING THE GDMC INTERVENTION?.....	218
6.4 THE MOTIVATIONAL CONSTRUCT OF THE GDMC: COMPONENTS, CONDITIONS, AND TRIGGERS	222

6.5 COMPONENTS OF THE GDMC	223
6.5.1 From distal goals to shared and directed challenging proximal goals 224	
6.5.2 A salient facilitative structure that promotes friendly competition.....	227
6.5.3 From positive emotion to enjoyment	230
6.6 CONDITIONS AND TRIGGERS OF THE GDMC	232
6.6.1 Aligned conditions.....	232
6.6.2 Triggers to start the motivational current.....	234
6.7 SUMMARY.....	235
CHAPTER 7 CONCLUSION	236
7.1 INTRODUCTION.....	236
7.2 RESEARCH SUMMARY AND MAJOR FINDINGS	236
7.3 SIGNIFICANCE OF RESEARCH FINDINGS	245
7.3.1 Methodological contribution	245
7.3.2 Theoretical contribution	247
7.3.3 Pedagogical implications	249
7.4 THE STUDY'S LIMITATIONS	255
7.5 SUGGESTIONS FOR FUTURE RESEARCH.....	258
REFERENCES	260
APPENDIX A. KING'S COLLEGE LONDON RESEARCH ETHICS COMMITTEE APPROVAL	275
APPENDIX B. UQU'S ADMINISTRATION APPROVAL	276
APPENDIX C. INFORMATION SHEET	277

APPENDIX D.	CONSENT FORM	279
APPENDIX E.	SCREENSHOTS OF THE CONTEST WEBSITES	280
APPENDIX F.	QUESTIONNAIRE POOL OF ITEMS	282
APPENDIX G.	THE COMPONENTS OF MOTIVATIONAL TEACHING PRACTICE IN THE L2 CLASSROOM.....	290
APPENDIX H.	QUESTIONNAIRE TO ASSESS GDMC INTERVENTION EFFECTS ON L2 MOTIVATION IN CLASSROOM SETTING.....	291
APPENDIX I.	FOCUS GROUPS PROMPTS	293
APPENDIX J.	CHANGES IN LEARNER'S MOTIVATION-TRACKING GRAPH	294
APPENDIX K.	FOCUS GROUP INTERVIEWS CHECKLIST	295
APPENDIX L.	EXAMPLE OF A STUDENT SELF-PLOTTED GRAPH	296
APPENDIX M.	SCREENSHOT OF THE QUESTIONNAIRES IN SURVEYMONKEY.COM	297
APPENDIX N.	ANALYSIS OF MOTIVATION-TRACKING GRAPHS USING EXCEL	298
APPENDIX O.	INITIAL CODING CODEBOOK.....	299
APPENDIX P.	REVISED CODEBOOK.....	303
APPENDIX Q.	EXAMPLE OF NVIVO'S MEMOS AND ANNOTATIONS TOOLS	307

Table of Figures

Figure 1 Visual representation of DMC theory structure and shape.....	43
Figure 2 The GDMC framework’s structure and shape.....	75
Figure 3 Manifestation of the theoretical and practical aspects of DMC as a GDMC intervention	102
Figure 4 Illustration of the motivational aspects examined at each study level.....	105
Figure 5 Qualitative data comparisons plan.....	145
Figure 6 Average students’ perceptions of the motivational level of their learning experience	149
Figure 7 Average student perception of the motivational level of their learning experience	154
Figure 8 Average students’ score on attitudinal state variables.....	158
Figure 9 Students’ average scores on overall motivation.	161
Figure 10 Average score of treatment level 1 group in different points in time.....	163
Figure 11 Motivation-tracking graph for treatment level 1 group (class G106).....	165
Figure 12 Motivation-tracking graph for treatment level 1 group (class G104).....	166
Figure 13 Motivation-tracking graph for treatment level 2 group (class G103).....	167
Figure 14 Motivation-tracking graph for the control group (class G102)	168
Figure 15 Stages of qualitative analysis in the current study.....	171
Figure 16 Overview of the highest referenced parent codes in the first stage of coding	182
Figure 17 The result of the pattern coding in the second stage of coding	184
Figure 18 Axial illustration of theme 1: Structured design of motivation	187
Figure 19 Axial illustration of theme 2: Characteristics of a playful learning experience	199

Figure 20 Shape of the motivational current created by the GDMC	238
Figure 21 Illustration of the dynamic interaction between the structural elements and the resulting playful learning experience	240

Table of Tables

Table 1 Theoretical foundations used in gamification frameworks (Seaborn and Fels, 2015, p. 19)	65
Table 2 Six elements of RECIPE gamification inspired by game design (Nicholson, 2015, p. 5)	71
Table 3 Seven frameworks for focused interventions (reproduced from Dörnyei et al., 2015, p. 177)	88
Table 4 Number of students who agreed to participate in the study	106
Table 5 Assigning sections as experimental or control.....	107
Table 6 Examples of textbook objectives at the beginning of each unit converted into an activity.....	108
Table 7 Complete description of the contest intervention procedures	109
Table 8 Dimensions and scales in the questionnaire.....	125
Table 9 Cronbach's alpha coefficient for the internal consistency for the Attitudes Toward the Course (items 1–17)	133
Table 10 Cronbach's alpha coefficient for the internal consistency for the L2 Classroom Linguistic Self-Confidence (items 18–22).....	134
Table 11 Cronbach's alpha coefficient for the internal consistency for L2 Classroom Anxiety (items 23–27)	134
Table 12 Cronbach's alpha coefficient for the internal consistency for Willingness to Communicate (items 28–32).....	134

Table 13 Number of completed self-plotted graphs.....	138
Table 14 Number of students' motivation levels assessment questionnaires completed	138
Table 15 Focus group interviews according to section, date and time	139
Table 16 Descriptive statistics of first dimension effect in R1	149
Table 17 Results of Mann-Whitney U tests	152
Table 18 Results of LSD post-hoc tests	154
Table 19 Results of Mann-Whitney U tests	156
Table 20 Results LSD post-hoc tests	157
Table 21 Results LSD post-hoc tests	160
Table 22 Results LSD post-hoc tests	163
Table 23 Degree of motivational change in all groups	169
Table 24 Inter-rater reliability Kappa results	175
Table 25 Codes from the first stage of coding	176
Table 26 Examples of extracts coded as 'educational value'	183
Table 27 Most frequently referenced categories in pattern coding.....	184
Table 28 Most frequently referenced subcategories in pattern coding	185
Table 29 Examples of extracts coded as 'positive effect of the contest'	188
Table 30 Examples of fixed teams' effect on motivation	190
Table 31 Examples that indicate an increasing motivational current	192
Table 32 Examples of the effect of the end goal (the contest prize).....	193
Table 33 Examples of the effect of challenging proximal goals (the activities).....	194
Table 34 Examples showing activities working as regular checkpoints that provided the students with affirmative feedback	195
Table 35 Examples of the effect of the game design elements (points).....	196

Table 36 Examples of the effect of the game design elements (leaderboard)	197
Table 37 Examples of the effect of ungraded activities and academic pressure.....	200
Table 38 Examples of the effect of losing activities	201
Table 39 Examples of lack of interaction in regular classes	202
Table 40 Examples of the effect of enjoyment	203
Table 41 Examples of higher interaction and reduced social anxiety as a result of interaction between the elements of competition, freedom in class, and team identity	204
Table 42 The effect of performing the activity as a change of routine	206
Table 43 Examples of the effect of boredom in regular classes	207
Table 44 Examples of the effect of discussing interesting topics	208
Table 45 Examples of students recommending a balance between regular classes and activities	209
Table 46 Examples of environmental factors as demotivational elements	211
Table 47 Examples of homework as a demotivational element.....	211
Table 48 Highest referenced demotivational elements by treatment group level	212
Table 49 Excerpts exemplifying students forgetting environmental demotivational elements while performing the activity.....	213
Table 50 The three motivation levels used in the study.....	217

Dedication

To Areen, you are more than I deserve

To Maha and Khalid, this would not have been possible without your prayers
and encouragement

Acknowledgements

I would like to express my gratitude to my supervisors Dr Ursula Wingate and
Dr Mary Webb for their support throughout this doctoral journey.

Abbreviations

Abbreviation	Meaning
ANOVA	Analysis of variance
BERA	British Educational Research Association
BLAP	Badges, Levels/Leader boards, Achievements, and Points
CDS	Complex dynamic systems theory
DMC	Directed motivational current
EGP	English for general purpose
ESP	English for specific purpose
GDMC	Gamified directed motivational current
L2	Second language
LMS	Learning management systems
LSD	Least significant difference
MoE	Ministry of Education
PBL	Project-based learning
RECIPE	Reflection, Exposition, Choice, Information, Play, and Engagement
WTC	Willingness to communicate

Chapter 1 Introduction

1.1 Introduction

The aim of this introductory chapter is to set the scene for the present study and explain its purpose. I start by explaining the focus of the study and then provide a brief background of the study's context. I discuss the situation concerning second language (L2) motivation in Saudi Arabian higher education by identifying the problem of lack of motivation among university students in Saudi Arabia. In particular, I discuss the ineffectiveness of the widespread adoption of English for specific purposes (ESP) courses in addressing this issue. In doing this, I problematise the standard solution of using the ESP curriculum to raise students' motivation in Saudi universities, thus identifying gaps in the research regarding L2 motivation in the study's context. Next, I explain the study's objective and contributions to the field of L2 motivation research. Finally, the study's research questions are presented, followed by an overview of the structure of the thesis.

1.2 Focus of the study

Van Lier (2014) argues that motivation can be considered as the most important element in language learning. This means that understanding L2 motivation can aid educators in designing a learning experience that promotes high motivation and helps students reach their long- and short-term goals. In this study, I explore the use of game design elements from the field of gamification research to operationalise directed motivational currents (DMC) theory (Muir and Dörnyei, 2013). As explained in Chapter 2, DMC theory was conceptualised under complex dynamic systems (CDS) theory, which views motivation as a complex phenomenon that fluctuates over time rather than as a static construct

(Dörnyei and Ushioda, 2013). However, to be utilised in L2 classrooms, DMC theory needs a practical framework that is grounded in that context, as is seen in to the concept of ‘vision’ (Dörnyei and Kubanyiova, 2014), the L2Motivational self system (Kubanyiova, 2009), content and language integrated learning (CLIL) that aims to increase the ‘authenticity of purpose’ (Pinner, 2013), and motivational emergence (Sampson, 2015). Empirical studies in the field of gamification show that game design elements have been found to effectively change students’ behaviour and increase engagement, although their use is often not based on a theoretical framework (see Chapter 2). Consequently, in this research I design a gamified directed motivational current (GDMC) framework and test it in an L2 classroom setting to investigate its impact on students’ L2 motivation. Since the GDMC framework views L2 motivation as a complex dynamic system, I mainly focus on investigating the dynamic (the interlinking parts of the GDMC) and temporal (changes in motivation over time) aspects of L2 motivation that result from implementing an educational intervention based on the GDMC framework with university-level students in Saudi Arabia.

1.3 The study’s context: Problematising the use of ESP to raise students’ motivation in Saudi Arabian higher education

Although the current study is situated in the context of higher education in Saudi Arabia, there has been little disagreement in the literature that L2 demotivation is a common problem across the international context of L2 learning. One possible reason for such commonality maybe that fact that English has become a global lingua franca with roughly one billion speakers worldwide, the majority of whom are non-native. As a result, “it has been increasingly argued that English no longer exclusively represents the culture and nationality of native English-speaking countries, given that English is used increasingly

among non-native speakers, as well as between native and non-native speakers of English” (Cheung Matthew Sung, 2013, p. 379). Not surprisingly, this has led to changes in learners’ perceptions and attitudes towards learning English as an L2 in the global context. To this end, Al-Hoorie and Hiver (2020, p. 2) note that it has been suggested that L2 motivation for learning English as an L2 is fundamentally different from motivation to learn other languages and other nonlanguage academic subjects and thus, any motivation theory “need[s] to be somehow “tailored” to fit the distinctive nature of L2 learning” and the context of application (e.g. Gardner’s socio educational theories of motivation (Gardner, 1985); the L2 motivational self-system (Dörnyei, 2005); ESP (Paltridge and Starfield, 2014); Noels’s application of self-determination theory (Noels, 2001; Noels et al., 2000).

In Saudi Arabia, the English language is taught in public schools and universities as the primary foreign language students must learn; hence, the Ministry of Education (MoE) continuously displays substantial interest in English language programmes. The MoE has made several attempts to reform English language programmes over the past two decades. In the 2000s, the MoE started to reform curricula at all levels of education, which included English language programmes as a respond to the events of 11 September 2001. Karmani (2005, p. 740) states:

Since the onset of the war on terror, a ferocious, unprecedented campaign of international political, economic, and media pressure has been instituted against Arab and Muslim governments to reform their national curricula.

Several steps have been taken to reform English curriculum along with teachers’ attitudes by the MoE. First, close attention was paid to the content of all curricula, and textbooks (which in many cases become the de facto curriculum) were updated to remove negative

content related to foreigners while at the same time not contravening traditional Islamic values. Second, in 2004, English language learning was introduced elementary schools (ages six to 12) for the first time and the number of English periods were increased from four to 10 periods per week in intermediate and high schools. Third, large number of Saudi English teachers (around 20,000 between 2002 and 2010) were offered the opportunity to study abroad and take part in professional development workshops intended to foster a more communicative English approach using technology as part of the MoE's Tatweer initiative (Elyas, 2011; Elyas and Picard, 2010).

Despite the importance placed on English language learning and teaching in Saudi Arabia, English language programmes have faced a number of problems, such as the slow progress of any developmental change in pre-university level English language programmes due to lengthy debates among different decision-making bodies in Saudi Arabia over the non-educational aspects of changing educational curricula, including, but not limited to, political and religious issues (Al-Seghayer, 2011; Mahboob and Elyas, 2014). However, English language programmes at the university level did improve considerably, mainly through shifting from curricula based on the grammar translation method and the audio-lingual method, both of which promote passive teaching approaches that depend on repetition and memorisation of vocabulary and grammatical rules, to a focus on the communicative competencies that promote interactive learning (Al-Hazmi, 2003). Communicative competencies can be manifested in the many facets of life in which people need to use an L2 for practical reasons. Evaluating students using these criteria necessitates that educators create teaching programmes that aid in promoting communication and interaction. To do this, many Saudi universities started to offer a mix of English for general purposes (EGP) and ESP courses (Zaki, 2007). As the

name suggests, ESP means teaching and learning English for a specific purpose, such as English for science and technology, academic English, medical English, and English for business. Schug and Le Cor (2017, p. 73) state that ‘such courses [teaching ESP] were conceived, in part, under the belief that they would be inherently more motivating as they, ideally, correspond directly to students’ interests and needs.’ The consideration that English learning is a tool or an instrument used to reach a specific goal (labelled ‘instrumental motivation’) is often linked with L2 motivation in the literature. One prominent example is the study by Dörnyei et al. (2006), which employed a large-scale longitudinal survey to examine Hungarian language learners’ attitudes and thus motivation regarding learning five target languages (English, German, French, Italian, and Russian). The study involved more than 13,000 participants (aged 13–14 years) and spanned a period of 12 years (1993 to 2004). The authors found a steady decline over time in students’ motivation towards learning a foreign language in general, with instrumental motivation for learning English being a clear exception due to its demonstration of significant growth. Taguchi et al. (2009) conducted a comparative study to validate the results found by Dörnyei et al.’s (2006) large-scale study mentioned above in three Asian contexts (Iran, China, and Japan). The study involved 4,943 language learners (2,029 in Iran, 1,328 in China, and 1,586 in Japan) who represented three categories: working professionals, secondary school students, and university students, both English majors and non-English majors. The study concluded that the findings of Dörnyei et al.’s (2006) longitudinal Hungarian research project were not context specific because similar results were found in Iran, China, and Japan, all of which differ significantly from Hungary and from each another. As the studies discussed earlier suggest, learners seem to have positive attitudes towards learning English when it

corresponds to their needs. In other words, students appear to be more motivated to learn an L2 when it serves a specific purpose.

In the context of Saudi Arabian higher education, a number of studies that investigated L2 motivation suggested ESP courses be introduced in order to enhance students' motivation. For example, Elsheikh et al. (2014, p. 35) state that 'educators and instructors of English in Saudi universities encounter a great deal of demotivation among students who learn English [for general purposes] as a university requirement. Students find it a heavy duty and a subject that they do not see its importance.' Khan (2011) argues that the 'lack of proper motivation and attitude' is one of the main challenges university students face in Saudi Arabia. Alfehaid (2011) conducted a needs analysis and a course evaluation study for the purpose of developing an ESP course at a health sciences college in Saudi Arabia. The study reports, 'Findings suggest that the teaching methodologies and the extent of students' interaction, motivation and participation were not appropriate, at least in some classes, and that they needed improvement' (Alfehaid, 2011, p. 178). A study by AL-Murabit (2012) analysed the language curriculum that is taught during the foundation year at a Saudi community college in which English is the primary medium of instruction with the objective of improving said curriculum. AL-Murabit (2012) states that teachers in this community college frequently report a lack of motivation from a large number of students. The author argues that the problem regarding students' lack of motivation may be attributed, in part, to learners' passive role in choosing what and how they should learn and suggests that ESP courses be introduced at the college as a solution to this issue.

Since then, a mix of EGP and ESP curriculums has been used at most Saudi universities to raise students' motivation (Ahmad, 2012). Such a mix of EGP and ESP curriculums is

used at Umm Al-Qura University (UQU, a large public university located in Mecca city, Saudi Arabia), which is the present study's context. In the foundation year at UQU, the Oxford English for Careers textbooks are taught alongside the EGP curriculum (the curriculum used in the study's context is discussed in detail in Chapter 3). However, studies that empirically validate ESP's effectiveness in raising students' instrumental motivation in the classroom remain scarce, especially in Saudi Arabia (Al-Roomy, 2017). In fact, a number of studies reported that levels of L2 motivation among university students in Saudi Arabia is problematic and urge for immediate and even drastic reform to raise students' L2 motivation despite the implementation of ESP courses (e.g., Ahmad, 2012; Alghamdi, 2019; Al-Roomy, 2017; Mahib ur Rahman & Alhaisoni, 2013).

The notion that adopting English language courses that are perceived to target students' practical L2 needs would automatically raise motivation has been criticised across the literature. Many researchers have argued that, in addition to employing an ESP curriculum, a number of other elements must be considered. For instance, Hutchinson and Waters (1987) argue that failure to conduct a proper analysis of students' needs may result in a mismatch between an institution's perception of its learners' needs and their true needs—a mismatch that is often harmful to L2 motivation. Dudley-Evans et al. (1998) point out that a course's intensity, in terms of length and number of classes, may significantly affect learners' motivation, stating that they 'once visited a university where students followed a year-long intensive English course before beginning their subject courses. Students' motivation seemed to decline over the year, in some cases quite dramatically' (p. 147). Moreover, Waters (1993) emphasises that a gap was developing in ESP between theory and practice, as ESP was being 'increasingly taught to large classes of poorly-motivated learners by inexperienced teachers with very limited

resources' (p. 16). He argues that an ESP curriculum is not inherently motivating and advocates that language classrooms should include 'plenty of lively, challenging, stimulating activities capable of motivating learners who lack confidence in their ability to use English and who may tend to view ESP as only a requirement rather than in more positive terms' (Waters, 1993, p. 16). Recently, Schug and Le Cor (2017 p. 73) have argued that L2 researchers should not accept the notion that ESP courses are inherently more motivating at face value, and they suggest 'that a thorough analysis of student behaviours and attitudes in ESP courses is required to fully understand their effectiveness in terms of their capacity to motivate students.' The authors argue that a thorough analysis of interactions between student behaviours, attitudes, and motivational elements found in the classroom is needed to fully understand the effectiveness of those motivational elements. To do so, they propose examining L2 motivation through the lens of CDS theory.

Studies that investigate the effects of ESP courses on L2 motivation in Saudi Arabia (the current study's context) are considerably scarce and do not convey encouraging results. One prominent example is the qualitative doctoral study conducted by Makrami (2010), who investigated the effect of affective elements, such as motivation, anxiety, and attitude, on an integrative versus instrumental use of L2 among Saudi university students who study either ESP or EGP. The study also examined how these affective elements might relate to students' academic achievements in language learning. It involved 507 university students who took the same survey twice to measure their L2 motivation—a pre-test at the beginning of the academic term and then a post-test towards the end of the term. The study found that no significant changes occurred among students' motivation or attitudes at the time of the post-test for either the ESP or EGP groups, thus concluding

that the ‘finding was not consistent with the basic logic of ESP that learners have higher attitude [and motivation] when learning what they want’ (Makrami, 2010, p. 72). However, despite Saudi universities utilising ESP courses to tackle the problem of low motivation among their L2 learners for more than a decade now, previous studies in the same context concluded that the issue persists. For example, Daif-Allah and Alsamani (2014, p. 129) investigated reasons why Saudi learners have low motivation levels and ‘observed that quite a significant number of high school graduates in Saudi Arabia detest studying English . . . It is common for students to lose interest immediately after starting an English course, resulting in poor performance.’ Al Shlowiy (2014, p. 129) asserts that lack of motivation among Saudi L2 learners is a critical issue which has social, psychological, and attitudinal roots and needs to be promptly addressed. Thus, in his paper, the author discusses ‘how to lift motivation levels between learners in Saudi Arabia by suggesting some steps to raise the motivation level in the Saudi context.’ More recently, Alghamdi (2019, p. 6) stated that ‘Saudi learners’ low motivation represents a massive problem’ and set out to explore the non-academic motivational factors that affect students at a Saudi university. He concluded that factors related to family, religion, and culture contributed to students’ demotivational status. Likewise, in her study which specifically examined the L2 demotivation of university-level students, Albalawi (2018, pp. 78–83) argued that learners’

motivation is limited to learn only what is required in order to pass a test and very little interaction takes place in the classroom except for answering the teachers’ questions or completing a grammar task . . . These learners might believe that they can successfully achieve their goals and attain their bachelor degree with distinction without learning English. This belief might negatively affect their motivation to learn and their goals might be restricted to passing the course rather than learning the language.

The findings of these studies demonstrate that there is a problem with L2 motivation in Saudi Arabia and that the superficial introduction of ESP curricula has failed to raise students' motivation levels. This problem calls for a deeper examination of the phenomenon of L2 motivation.

The findings from the literature are supported by my own experience. I taught ESP and EGP at UQU for seven years prior to starting my PhD. From my experience as a teacher and my interaction with students over the years, it was apparent to me that the students were more concerned with passing the course than learning English. Students usually seemed not interested in doing activities unless they are graded and rarely participate enthusiastically in the class. During the years I taught at UQU, I implemented several teaching strategies in an attempt to increase students' L2 motivation. However, results showed that using motivational strategies alone was not an effective approach for tackling students' lack of motivation. I realised that enhancing L2 motivation needed a framework purposefully designed to intentionally initiate and sustain L2 motivation in a classroom setting. Such a framework must operate under a theory of motivation. This personal experience drove my interest in L2 motivation research and DMC theory in particular.

1.4 The study's aims and contributions

My study aims to raise L2 motivation among university-level students by applying an educational intervention based on the directed motivational current (DMC) theory (Muir and Dörnyei, 2013) and the concept of gamification, thus forming a gamified directed motivational current (GDMC) framework. DMC theory was first introduced by Muir and

Dörnyei (2013) as a promising construct for understanding L2 motivation. This theory was chosen for use in this study because it was conceptualised under CDS theory, which views motivation as a complex phenomenon that fluctuates over time rather than as a static construct. However, DMC theory needs a practical framework in order to be utilised in L2 classrooms. Gamification has an apparent and immediate effect in real-world classrooms yet lacks an underpinning theoretical base (see Section 2.4.2.2). Accordingly, I argue that game design elements, namely points and leaderboards, may serve as an appropriate internal structure to operationalise DMC theory that, as a new theory, must be grounded in the context of real-life L2 classrooms. The proposed study aims to examine the introduction of game design elements based on Nicholson's (2015) explanation of meaningful gamification (see Section 2.4.2.3) as a practical framework for implementing DMC theory and thus creating a group motivational current in an L2 classroom. My goal is to observe and analyse the process of introducing the intervention moment by moment in an attempt to identify classroom interactions, the effects on motivation, and the motivational current characteristics all within the system of DMCs. By doing so, the study aims to add to the scarce empirical literature on DMC theory by helping to identify the theory's benefits, shape, and characteristics; this is especially significant both when DMC theory is coupled with gamification design elements as an established practical framework and within the specific context of an L2 classroom. The intended study has the potential to inform future studies across settings for two reasons: the underpinning theory for the GDMC framework (i.e., DMC theory) is built on a human phenomenon that transcends context (Muir, 2016), and the framework is explicitly designed with practical applications in mind, as represented in the gamification design elements.

Another goal of the present study is to provide pedagogical contributions. By implementing the GDMC intervention and examining its effect on motivation and identifying key motivational and demotivational elements within the GDMC system, I aim to offer teaching practice recommendations that may help teachers in designing and implementing a motivational intervention that is based on DMC theory and is appropriate to the context of application.

Finally, I aim to contribute to L2 motivation research methods in two ways. The first is by moving away from the traditional quantitative methods and employing a mixed-methods approach to examine students' motivation corresponding to the contemporary trend in L2 motivation research. The second way is by focusing on tracking temporal changes in students' motivation using self-plotted motivation-tracking graphs, which is a novel instrument that provides a visual representation of changes in students' L2 motivation levels during the intervention (discussed in detail in Chapter 3). Thus, I add to the literature that uses a mixed methodology and aims to examine the fluctuation in motivation over time (e.g., Hiver et al., 2021).

1.5 The research questions

To reiterate, in this thesis, I develop a framework for the incorporation of gamification in a university L2 course under DMC theory (i.e., the GDMC) in order to initiate and sustain high motivation levels among students. Dörnyei et al. (2015b) use 'retrodictive qualitative modelling' (Dörnyei, 2014a) to describe a DMC's construct; that is, its main components, conditions that must be present in the context of application and aligned in a way to allow for a high motivational current to form, and triggers that can initiate the motivational current (the DMC construct is discussed in detail in Section 2.3). Similarly, the GDMC

framework development is based on a data analysis of the in-depth examination of the GDMC application process to determine the framework's construct (i.e., components, conditions, and triggers) and compare it to that of the DMC.

I believe this head-on approach will provide the most favourable insights into how motivation should be initiated and sustained in L2 learning contexts. This understanding should subsequently lead to future research achieving various integrative models that may be used to initiate and sustain individual and group motivational currents in L2 classrooms. To achieve this study's goals, as described in the previous section, the following research questions are presented:

- RQ1) How do students' L2 motivation levels fluctuate during the application of the GDMC intervention?
- RQ2) How do students describe their motivation relative to their learning experiences during the application of the GDMC intervention?
- RQ3) What is the construct (i.e., components, conditions, and triggers) of the motivational currents created by the GDMC framework?

Answering these research questions will help further research to gain a more comprehensive understanding of the components of DMCs as well as the relationship between gamification and motivation.

1.6 Thesis structure and chapter outline

Chapter 1 (this chapter) explains the focus of the study, its aims and contributions to the field, and presents the research questions. It focused on problematising the current situation of L2 motivation in the study's context by reviewing the increasing number of studies that examine the status of the L2 motivation of university-level students in Saudi

Arabia. The literature review in the next chapter discusses the validity of directed motivational current (DMC) theory from two aspects. The first is the theoretical aspect which shows that DMC theory was founded as a result of the recent move in motivation research from individual differences to considering motivation as a complex dynamic system. The second is the empirical aspect which is examined by reviewing the increasing number of studies that confirm the existence of DMCs. Then, it moves to problematising the use of DMC theory in L2 learning by explaining the lack of a practical framework based on established L2 teaching and learning practices. In Chapter 2, I suggest the use of game design elements to operationalise DMCs in an L2 classroom setting. This is done through the GDMC framework, which incorporates points and leaderboards with DMCs. The chapter concludes by reiterating the research questions. Since the research questions aim to cover both the temporal and dynamic aspects of students' motivation, in Chapter 3 I justify the mixed methods employed in the current study to gather data and answer the research questions. Subsequently, the analysis and findings of the quantitative and qualitative data are presented in Chapters 4 and 5, respectively. An in-depth discussion of the study's qualitative and quantitative results is then presented in Chapter 6. Lastly, in the concluding chapter, I present remarks and reflections regarding key findings and identify and discuss the study's theoretical, methodological, and pedagogical contributions. The limitations of the study are also discussed, followed by recommendations for future research.

Chapter 2 Literature review

2.1 Introduction

The primary aim of this chapter is to provide an overview of the fields of second language (L2) motivation theory and gamification. Although both gamification and L2 motivation share the same goal of enhancing educational motivation, the two paradigms have developed independently. Therefore, the current study suggests that the two fields can benefit from each other. In this literature review, I bring together several avenues of research in order to explain the value of integrating the theory of directed motivational currents (DMCs) from the field of motivation theory as well as the framework of meaningful gamification from the field of gamification. The first part of the chapter follows the major shifts in the development of motivation theory research—focusing mainly on L2 motivation theory wherever possible—that led to the emergence of DMC theory. Next, DMC theory is presented as the main theory of the present study. Section 2.4 offers an overview of the large field of gamification so that the use of motivation theory in gamification frameworks and the empirical studies of gamification in education may be examined. In the following section, I present the gamified directed motivational current (GDMC) framework, proposing that adding robust gaming elements to DMC theory will strengthen the theory by increasing its applicability in real-life L2 classrooms. The final section of the chapter offers the rationale for this study, discusses the study's value, and restates the research questions.

2.2 L2 motivation conceptualisation and research approaches: The emergence of the theory of directed motivational currents

The aim of this section is to provide a broad overview of L2 motivation research, highlighting important points of change in research approaches. This is done in order to explain the underlying trends that led to the development of DMC theory, which is presented in Section 2.3 as the main L2 motivation theory for this research. DMC theory is described in the literature as a recognisable motivation phenomenon; therefore, understanding the process that led to its conceptualisation helps to give the theory theoretical validation. It is important to note that the literature review in this section is meant to show key points of transition in the development of L2 motivation leading to DMCs rather than to be a comprehensive review.

2.2.1 L2 motivation theory research approach: From individual differences to dynamic systems

Gardner and Lambert's article "Motivational Variables in Second Language Acquisition" (1959) is often considered to be the paper that established the field of L2 motivation and separated it from motivation research in educational psychology in general. In this article, Gardner and Lambert emphasise that language learning involves a social group of users who interact with the content and each other. This social aspect makes language learning and teaching different from other subjects. Investigating the social aspect of L2 learning resulted in Gardner's (1983) socio-educational model of second language acquisition, which suggests that, in addition to students' individual aptitudes, students' motivation also plays an important role in the successful acquisition of a second language. Both aptitude and motivation are considered key individual differences that determine the learner's level of success in learning an L2. Gardner's model postulates that the

motivation for learning a foreign language is bound by sociocultural factors. This means that students' social attitudes, such as their feelings towards the foreign language community and attitudes towards education—including feelings towards the course content and teacher—will have a considerable impact on their desire and motivation to learn the second language and, thus, on their success. These two sets of attitudes contain many variables that were at the centre of L2 motivation research in its early stages (Dörnyei and Ushioda, 2013).

Gardner's (1983) socio-educational model mainly classifies motivational variables as integrative or instrumental. Integrative motivation (Gardner et al., 1992) refers to the learners' perception of the culture and community of an L2 in a cause-effect relationship. In other words, students with an integrative motive have a positive attitude towards the L2 culture and wish to interact with its members socially, and this motive reflects positively on the students' motivation and, in turn, on their linguistic achievement (Lamb, 2004). Instrumental motivation, in contrast, relates to Gardner's belief that motivation is aroused by orientation (Gardner's term for goal), as goals are what energise and motivate students to learn an L2. Motivation is labelled instrumental or goal oriented if the learners' goals are purely pragmatic, such as getting a better career, travelling, or passing exams (Clément et al., 1994). According to Morisano (2013), achievement goals have been generally classified in the literature as mastery goals (sometimes called learning goals or task goals) and performance goals (also called ability goals or self-enhancing goals). In goal theory, performance goal 'means trying to beat a standard without any explicit motive being implied ... [which includes] ... trying to impress others or prove oneself by succeeding, gaining rewards (or awards), or competing with others without knowing how others performed.' (ibid, p. 498–499) However, there has been significant confusion and

discrepancy concerning the meaning of performance goals in the education literature (Morisano, 2013). Whereas mastery goals simply refer to focusing on the process of acquiring new knowledge or skills. In the educational literature, mastery goals are typically associated with long-term future goals and can be a source of internal motivation while performance goals are more strongly linked with short-term goals and may not be conducive to intrinsic motivation.

However, this does not mean that one type of achievement-oriented goal is better than the other. In this regard, Linnenbrink-Garcia et al. (2008) conducted a review of over 90 articles to investigate the effect of performance and mastery goals. The authors found that 40 per cent of the studies found a positive relationship between the two types of goals in relation to academic achievement and around 5 per cent found a negative relationship.

This perspective of cause and effect between goal orientations and motivation led researchers to focus on investigating L2 motivation with the aim of identifying individual motivational variables related to either the learner or the context, hoping to find them to be unmixed, which would enable educators to treat these individual motivational variables as universal phenomena and, thus, to use them positively in a linear cause-effect approach.

According to Dörnyei (2005), Gardner's model was used as a framework in most L2 motivation research until the 1990s. At this point, scholars began challenging the model and explaining its limitations in three main respects. First, they argue that the socio-educational model is too simple in reference to the numerous possible influencing factors (social or otherwise) that are actually involved in the conception of motivation (Crookes

and Schmidt, 1991; Skehan, 1991). Simply put, it is difficult for one L2 motivation model to account for all variables, as there are too many influences on students' motivations. For example, Oxford and Shearin (1994) report that they could identify about 20 different distinguishable types of motivations that did not relate to Gardner's classification of motivation as instrumental or integrative. More recently, there have been arguments claiming that searching for a 'super theory' that can account for all types of motivation is unrealistic (Dörnyei and Ushioda, 2013, p. 4).

Second, it has been argued that the socio-educational model's emphasis on the social dimension is exaggerated, as it is not associated with the context of L2 learning. Crookes and Schmidt (1991, p. 469) explain that the focus on the social aspect 'does not do full justice to the way SL [second language] teachers have used the term motivation.' They also state that the discussion related to motivational variables 'lacks validity in that it is not well-grounded in the real-world domain of the SL classroom, nor is it well connected to other related educational research' (p. 470). Third, although the socio-educational model takes learners' attitudes towards the L2 environment, course, and teacher into account, this is not enough to account for the complex nature of students' motivations (Dörnyei, 1994).

These limitations led researchers to call for an exploration of new areas of research (Brown, 1990; Dörnyei, 1994; Oxford & Shearin, 1994). Examining the learner and the context to identify motivational influencers is too simplistic of an approach to understanding motivation. Gardner and MacIntyre (1993), therefore, explicitly called for the development of a more dynamic theory of L2 motivation 'as motivation itself is

dynamic. The old characterization of motivation in terms of integrative vs. instrumental orientations is too static and restricted' (p. 4).

2.2.2 Conceptualising L2 motivation as a dynamic system

Researchers then began to conceptualise L2 motivation as a dynamic system, where term *dynamic* means that L2 motivation involves an interaction between separate elements, such as the learner and the surrounding context. This contrasts with the socio-educational model, which perceives motivational variables as having fixed effects (e.g., positive attitudes increase motivation). Several models have been presented to address the dynamic nature of motivation. Williams and Burden (1997) introduced their social constructivist model, which was among the first to indicate the dynamic nature of motivation, and thereby started the transition in L2 motivation literature towards exploring new paradigms. Their model suggests that motivation is the result of an ongoing dynamic process that involves an interaction between three notions: 'reasons for doing something,' 'deciding to do something,' and 'sustaining the efforts' (p. 121). Williams and Burden (1997) claim that the motivation-initiating process is powered by a set of internal and external factors which 'include the whole culture and context and the social situation, as well as significant other people and the individual's interaction with these people' (p. 120). Another model that attempts, but fails, to view motivation as a dynamic system is Dörnyei's (2003) motivational characteristics of task processing. His system has three interrelated mechanisms: task execution, appraisal, and action control. The major limitation of Dörnyei's system, which he has himself recognised, is that it is too simple to account for the complexity of motivation as a dynamic system (Dörnyei and Ushioda, 2013). This means that other elements that influence motivation are overlooked and have to be considered.

Reflecting on previous models that consider a dynamic view of L2 motivation, Dörnyei (2003) observes that ‘motivation research soon drew attention to another, rather neglected aspect of motivation: its dynamic character and temporal variation’ (p. 17). He explains that motivation has both start and end points and calls for examining L2 motivation as a dynamic process that changes over time. This includes examining interactions between the learner and the surrounding context phase by phase on both the micro and macro levels. The temporal aspect is important for truly understanding the dynamic nature of motivation. The movement to portray the temporal organisation of motivation and to examine motivation as a process that develops over time has been advocated by many researchers, including Dörnyei (2000, 2002, 2003), Williams and Burden (1997), Ushioda (1994, 1996), and Dörnyei and Ottó (1998).

Dörnyei and Ryan (2015, p. 84) argue that the dynamic nature of motivation requires the examination of each dimension (dynamic interactions and temporal variation) not ‘as a static attribute . . . but rather as a dynamic factor that displays continuous fluctuation . . . adapted to the ever-changing parameters of the context.’ The continuously changing variables of the context should be considered as part of any L2 dynamic motivation theory. In this regard, Dörnyei (2005) and Ushioda (2009) state that the interrelationships of social factors are always changing and extremely complex, as L2 motivation does not happen in a vacuum but rather in real-world settings, such as L2 classrooms. Dörnyei (2005) raises the idea of considering the real-world setting to critically assess his own process-oriented model of L2 motivation (Dörnyei and Ottó, 1998), which focuses on the temporal aspect of motivation. It became clear to him that studying the temporal factor alone is insufficient for understanding the inner workings of motivation, and that study

of the temporal factor should be coupled and integrated with study of the social context of the real world and *all* of its components. Indeed, situating L2 motivation in the context of L2 classrooms is important to enable any motivation theory to have practical applications. However, the addition of the social context dimension as a part of the dynamic nature of L2 motivation means including the learner, who is the most complex and diverse component of any context. This point is further emphasised by Dörnyei and Ushioda (2013), Dörnyei and Ryan (2015), and Ryan and Dörnyei (2013), all of whom argue that L2 motivation research is experiencing a shift in focus and expanding the dynamic and temporal perspective to include the dynamic nature of the learner.

As discussed above, there are three main aspects recognised as parts of L2 motivation: the dynamic interactive nature of motivation (e.g., interactions between context variables and the learner), the temporal aspect, and the complex nature of the learner. All the different variables within and between the three aspects makes researching and understanding L2 motivation a complex and difficult task. Just asking students about their motives for learning an L2 and drawing a cause-effect relationship between their motives and actions is too simple an approach. Muir and Dörnyei (2013, p. 369) note that ‘because our actions, however banal, are influenced by such a large number of factors and conditions . . . it is usually impossible to describe our motives with 100% accuracy.’ Moreover, Dörnyei and Ushioda (2013, p. 98) explicitly state that the research community’s approach to finding discrete motives through an “individual differences paradigm”—has by and large failed, because the dynamic complexity and interference of mental processes and attributes do not allow us to meaningfully distinguish more than three main dimensions: motivation, cognition and affect.’

To address the issue of L2 motivation complexity, researchers have called for an exploration of new research paradigms. Dörnyei et al. (2015a) suggest that L2 motivation researchers should take advantage of the steps forward taken by other fields, specifically the complex dynamic systems (CDS) theory that has been adopted by the field of second language acquisition under various frameworks, such as dynamic systems theory (De Bot et al., 2007), chaos theory (Larsen-Freeman, 1997), emergentism (Ellis and Larsen-Freeman, 2006), and complexity theory (Larsen-Freeman and Cameron, 2008).

2.2.3 The main problem with a CDS research approach to L2 motivation

A system, by definition, consists of a number of parts that are interconnected. However, for a system to be considered dynamically complex, it has to have two or more components that are interconnected and experience change over time (Dörnyei and Ushioda, 2013). This applies to L2 motivation as a system, because it includes a number of interconnected components that experience constant change. These interlinking components are (a) the learner, (b) the learning environment, and (c) the learning task (Dörnyei and Ushioda, 2013). However, viewing L2 motivation as a CDS invokes the major problem that is usually found in such systems: complex dynamic systems are, by nature, highly volatile, as the seeming randomness of interactions between the system's components makes such systems unpredictable. In a complex dynamic system, the starting parameters of its components are always different, and thus the system particulars behave differently each time the system is formed or purposefully initiated. In other words, because the learner, learning context, and learning task are each unique and constantly changing, the L2 motivation system will behave differently each time it is initiated. This characteristic of CDSs makes replicability extremely unlikely, which in turn makes confirming findings and, hence, researchability difficult (Dörnyei and

Ushioda, 2013; Ryan, 2009; Ryan and Dörnyei, 2013). Indeed, '[o]nce a system's behaviour is deemed to be unpredictable, any methodical investigation of it carries the danger of being considered pointless' (Dörnyei et al., 2015c, p. 69).

Dörnyei (2014) suggests that there are three CDS aspects that have been used to aid in researching and understanding L2 motivation as a CDS. He argues that focusing on these three aspects of CDSs would allow for the researchability of L2 motivation as single unit, because they have the power to provide a CDS with a recognisable shape. In other words, the researcher does not investigate the complex interactions within the L2 motivation system but rather takes a holistic view of the fluctuations of L2 motivation over a period of time. The aim is to compare the overall behaviour of different L2 motivation systems to identify those with similar patterns. After that, a retrocasting view of the behaviour of the L2 motivation system is possible, in which the latest phase in the system is explained through the previous one until the particulars of the system are understood.

The first aspect is viewing the CDS as a powerful and attractor-governed phenomenon. Treating L2 motivation as an observable phenomenon allows for the deduction of attractors in the system. For example, MacIntyre and Legatto (2010) conducted a study that examined L2 students' willingness to communicate (WTC). In the study, they conceptualised WTC as a dynamic system that allows for examining the variations and fluctuations of WTC as a system over time. The authors used an idiodynamic approach to identify fluctuations in WTC and concluded that the study approach was successful in revealing both consistency and variation in WTC as a system. For example, attractors (explained below), such as anxiety and searching memory for vocabulary, were identified as reasons for changes in the WTC system behaviour.

The second aspect is the deduction of system attractors. During its development, elements in a CDS interact and, as they settle, they tend to self-organise around fixed points in the system—called attractors—thereby forming a recognisable shape, known as attractor states (Waninge et al., 2014). An example from L2 motivation research is the concept of interest, which consists of several motivational, cognitive, and affective elements. For instance, many behavioural changes can be traced to students' interest in a certain aspect of L2 learning, such as the L2 culture, a particular learning context, or practical applications.

The third aspect is observable patterns in the outcome of the CDS. As discussed earlier, L2 motivations fluctuate and change; following this fluctuation through time leads to a certain shape that can be represented on a motivational graph. Through examining finished motivational experiences reported by different individuals, patterns of similar phases should emerge. For example, a number of individuals would describe similar motivational experiences that include similar initiation and ending phases and similar moments of intense or weak motivation during the motivational process. These patterns give the motivation experience a familiar shape and thus allow it to be recognised as a phenomenon. However, it should be highlighted that patterns of change depend on the timescale of observation (de Bot, 2015).

While total randomness would render such research pointless, these three aspects have the power to make a CDS researchable, as they reveal that the interactions within the system are not completely random. In a succession of papers, Dörnyei and his associates (Dörnyei et al., 2015b, 2015c; Henry et al., 2015; Muir and Dörnyei, 2013) used the above

three principles and, through ‘retrodictive qualitative modelling,’ which is a model that reverses the typical direction of research by examining the system outcomes and tracing the process back to the beginning to explore the system's components and how the system produced certain results, introduced the concept of DMCs as an observable motivation phenomenon.

2.3 Directed motivational currents

Directed motivational currents (DMCs) were first introduced by Muir and Dörnyei (2013) as a promising construct for understanding L2 motivation. Over the past few years, much theoretical research has been done to refine the concept of DMCs, mostly based on literature from the field of psychology. In their book, Dörnyei et al. (2015b) explain the theory concerning DMCs in more depth, offering robust details regarding DMCs’ ability to be used as a framework for understanding L2 motivational surges.

In this section, DMC theory will be defined and discussed, then its three components will be presented and explained. The following section describes conditions for a DMC initiation; the concept of group DMCs is then discussed to situate the theory in the context of an L2 classroom filled with students. In Section 2.3.4, the few, yet important, empirical studies that have offered evidence validating the theory are reviewed. Finally, the section closes with a discussion that explains the need for a practical framework to enable DMCs to be applied in L2 classrooms. The current study suggests that gamification has the potential to function as such a practical framework, as will be further explained in Section 2.5.

A DMC is defined as ‘a potent motivational surge that emerges from the alignment of a number of personal, temporal, and contextual factors/parameters, creating momentum to pursue an individually defined future goal/vision that is personally significant and emotionally satisfying’ (Dörnyei et al., 2015c, p. 103). As the definition shows, DMC theory has taken into consideration the previous motivation research discussed earlier in this chapter. For instance, DMCs are described in three ways: first, as being personal and related to the learner as a real and unique individual (which relates to the inclusion of the learner as part of the context); second, as temporal, and hence associated with the idea that motivation is ‘process-oriented’; and third, as contextual in that DMCs subscribe to the notion that context is a ‘fluid and complex system of social relations, activities, experiences . . . in which the person is embedded, moves, and is inherently part of’ (Ushioda, 2009, p. 220).

To clarify the concept of DMCs and relate that concept to real life, Dörnyei et al. (2015c) use the example of a person who wants to lose weight and become healthier. This person becomes motivated to reach a predetermined goal of losing a certain number of kilograms or to reach a predetermined future vision of themselves as a healthy person. The motivational current is thence initiated by joining a gym and adhering to an exercise routine until the goal is reached or the future vision is perceived to be realised. This example of a positive motivational surge is a familiar phenomenon to most people. Its initiation could be triggered by a set of complex reasons or simply by seeing an ad for a gym on the internet. The motivational experience in the above example is directional, in that it has a clear starting point that is usually recognised by the person experiencing the motivational surge or by others around that person, and it slowly fades away or abruptly ends once the goal is reached or the future vision is realised. It behaves like a current that

takes over the person's behaviour through the repetitive routine tasks required to fulfil the goal/vision. It is an emotionally satisfying experience where positive emotions are created by completing the repetitive routine tasks and receiving positive feedback. In other words, performing these tasks becomes enjoyable because the individual knows that completing them will progressively lead to their goal/vision (e.g., going to the gym to exercise and periodically seeing how much weight a person has lost), not because they are innately enjoyable tasks (e.g., playing games), although they may be. Hence, the theory is termed a *directed motivational current*.

It is not farfetched to assume that most of us have seen and recognised this well-known motivational surge, or even experienced it in many different contexts with many different initial starting parameters. The DMC shape of a prompted motivational surge, which leads to a steady change in routine behaviour that declines and ends once the goal reached, is almost always recognisable, and this recognisability is the crux of DMC theory and what makes the theory fertile ground for L2 motivation research. Based on the above description, I illustrated the DMC shape in Figure 1 below.

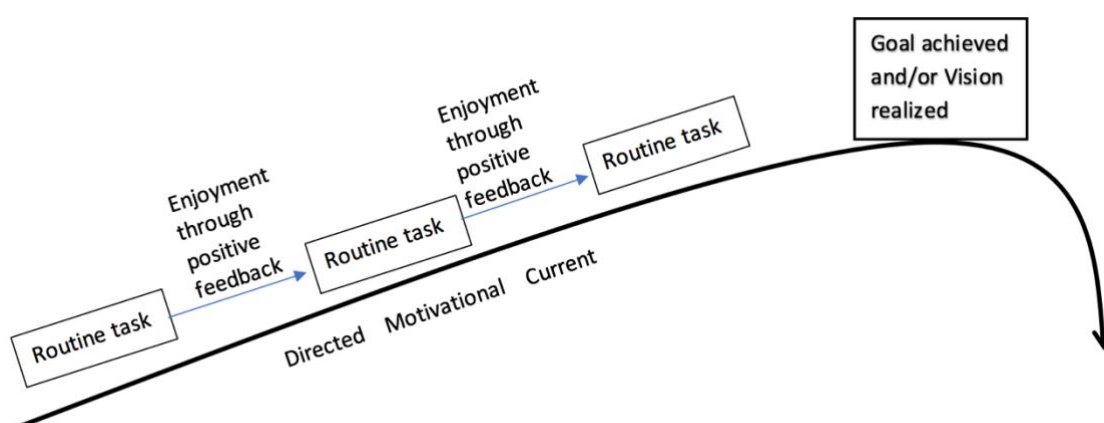


Figure 1 Visual representation of the structure and shape of DMC theory

Describing DMCs in terms of such a familiar and recognisable motivational phenomenon raises the question of why they have not been described in motivation literature before. According to Dörnyei et al. (2015b), the reason is that DMCs simply did not fit into any of the theoretical research backgrounds in the field of motivation, which highlights the importance of understanding the transitional points in L2 motivation research described in Section 2.2. Reviewing the research approaches to L2 motivation shows that none of them allow for the idea of DMCs, and that describing such a dynamic phenomenon had to wait until the field of L2 motivation was sufficiently developed to embrace CDS theory, which has the ability to encompass the conceptualisation of DMCs. The ability of CDS theory to describe a real-life phenomenon that is familiar to a large number of people indicates the validity of taking a CDS approach to L2 motivation and consequently the DMC concept itself.

2.3.1 DMC components

According to Henry et al. (2015), the conceptualisation of DMCs has three main components: they (a) are directed by a goal or vision, (b) have a salient facilitative structure in order to keep the momentum going, and (c) give positive emotions through a sense of participant ownership and investment. The dynamic play and interaction between these components and their many sub-factors should be the crux of any DMC motivation theoretical research or any empirical research that attempts to coordinate DMCs' effects and use their synchronisation to create and sustain an intended motivational surge. The three main components of DMCs will next be discussed in turn.

The first component of DMCs is goal/vision-orientedness. This component has been described as the most prominent in the structure of a DMC (Muir and Dörnyei, 2013). DMCs were developed 'as an extension of the concept of vision; DMCs represent a

perfect match between a vision and an accompanying action plan which amplifies rather than absorbs energy' (Dörnyei et al., 2015b, p. 36). Goal/vision-orientedness means that learners have a goal to work towards or a vision of themselves that they want to see materialised in the future. Goals have the power to drive one's actions, directing behaviour towards accomplishing tasks that lead to achieving one's goal. This means that the learner perceives accomplishing this series of tasks as a path to achieving the goal. This construct can be useful in motivating L2 students, as these tasks can be used to promote strong motivational drive. However, Dörnyei et al. (2015c) argue that if goals do not hold personal meaning for the learner, they remain abstract and mental constructs. Goals therefore need to be paired with a strong personal vision, which requires conjuring a powerful mental image of the learner's future self. According to Dörnyei and Kubanyiova (2014), a personalised vision has the power to sustain high levels of motivation by encouraging the learner to keep accomplishing tasks (labelled as proximal subgoals in DMC theory) until the vision is reached. For example, a learner's personal vivid vision of becoming an academic at a certain university may be manifested in the goal of obtaining a PhD degree. The goal could, and usually does, consist of a number of smaller tasks or proximal subgoals that must be achieved successfully, such as researching, collecting data, and passing exams.

The second component of DMCs is a salient and facilitative structure. Having tasks or proximal subgoals inside the L2 motivation system forces it to be organised and structured, which gives the system a distinctive shape. Proximal subgoals should be perceived by learners as a clear and well-structured route leading to their goal/vision. In contrast to most motivation theories, which consider motivation variables to be the driving power behind action, DMCs propose that the learner's personal motives lead to

action. According to Dörnyei et al. (2015b), this framework allows for motivation to initiate and energise the structure of a whole motivational system. This component (a salient and facilitative structure) must include three specific elements so that it ‘facilitates ongoing, goal-directed behavior’ (Dörnyei et al., 2015b, p. 80). These three elements are discussed in the following paragraphs.

The first element of the DMC structure is identifiable start and end points. The starting point of a DMC could be a single and extremely simple experience (e.g., coincidentally seeing an ad for a convenient language course) or a collection of complicated reasons that leads to the decision to drastically change one’s behaviour (the conditions for DMC initiation are explained in Section 2.3.2). The end point is an apparent stage that clearly marks the end of the motivational surge by reaching the goal/vision.

The second element of the DMC structure consists of a series of regular progress checks that provide affirmative feedback. Proximal subgoals (discussed in the first component above) can function as progress checkpoints. Henry et al. (2015) explain that having consistent checks that offer positive feedback on the learners’ progress is an integral part of a DMC, as such checks divide the ultimate goal into difficult but achievable subgoals and hence keep the learner on track and continuously propel them from one subgoal to the next, giving more energy to the DMC as a whole. Dörnyei et al. (2015b, p. 87) argue that because proximal subgoals provide the learner with a sense of progress, they act as ‘incentives for continued learning.’ These proximal subgoals should therefore be spread across a DMC.

The consensus that proximal subgoals should be repeated across a DMC leads to the third element of the structure, which is the presence of recurring behavioural routines. A person following such routines engages in a fixed set of regular actions. These routines should put the learner on ‘motivational autopilot’ through which ‘the initial momentum rules out the necessity for a motivational intervention each and every time a new step within the sequence is to be carried out’ (Dörnyei et al., 2014, p. 14). In other words, a successful launch of a DMC is not enough to sustain motivation; that launch has to be backed up by ‘a self-renewing stream of motivational process . . . through the establishment of a number of behavioural routines’ (Ibrahim, 2016, p. 41).

The third component of DMCs is that the motivational experience should be pleasurable and charged with positive emotions (Dörnyei et al., 2014). As a person engages in pursuing a personal and pleasant vision, every bit of progress becomes a source of positive feelings. These positive feelings can be seen most clearly every time the learner reaches one of the proximal subgoals along the way (Dörnyei et al., 2015c). Dörnyei et al. (2015b) point out that this type of positive emotion is linked to the concept of ‘eudaimonic well-being,’ which is, according to Waterman (1993, p. 679), an experience of feelings of happiness that arise from ‘self-realization through the fulfillment of personal potentials in the form of the development of one’s skills and talents, the advancement of one’s purposes in living, or both.’ In other words, such positive emotion comes from the awareness that accomplishing routine tasks will lead to the individual’s distal goal/vision. Monotonous ‘recurring behavioural routines’ thereby become fun and enjoyable tasks once perceived as part of a DMC (Dörnyei et al., 2015b). These routine tasks are not enjoyable activities themselves, like when a person practices a favourite hobby or plays a fun game and experiences a state of flow (in flow theory, enjoyment comes from

performing the immediate task without the promise of external reward—full concentration on the task at hand and losing track of time are some of its signs; see Csikszentmihalyi, 1990). Enjoying performing these ‘recurring behavioural routines’ in DMCs is a product of the progress made while chasing the positive vision that will be realised at the end of the DMC experience. In this regard, Lyubomirsky, Sheldon, and Schkade (2005) state that:

Recent longitudinal studies have focused specifically on volitional activity as a producer of enhanced well-being . . . In such studies, students are typically asked to pursue self-generated personal goals over the course of a semester. High levels of goal progress or attainment consistently predict increased well-being. (p. 119)

2.3.2 Conditions for DMC initiation

After reviewing DMCs components in the previous section, this section presents the necessary conditions for DMCs initiation. As discussed in Section 2.3.1, DMCs have a clear starting point, which is usually recognised by the individual or even the people around them. However, a DMC does not start spontaneously without reason; rather, it is the result of a combination of cognitive and contextual factors aligning in a way that sets the system into motion (Henry et al., 2015). Dörnyei et al. (2015b) state that the combination of cognitive and contextual factors can be represented by four conditions that must be present before the formation of DMCs. These conditions function as prerequisites to starting a DMC and their proper alignment should lay a foundation for a successful DMC initiation.

The first condition is a well-defined goal and clear personal vision (see goal/vision components in Section 2.3.1). A stimulus will not be able to trigger motivation if the

learner does not already have a well-defined goal to fulfil or a clear personal vision to pursue. The second condition is a sense of ownership and control. The learner's sense of control means that the learner must believe that he or she can accomplish each proximal subgoal or task and meet their objectives—otherwise, the learner may not be able to sustain the motivational current. It is therefore a prerequisite of DMCs that the learner perceives proximal subgoals as challenging but obtainable. If the student believes that he or she has the skills to achieve proximal subgoals, he or she will be motivated to do so. These proximal subgoals or tasks also function as feedback points in the motivation system. Positive feelings generated from achieving one task should motivate the student to move to the next task, thus providing the system with its self-propelling nature.

The third condition for DMC initiation is openness to the DMC experience. Students should participate in the learning process willingly and not be forced. In a DMC, proximal subgoals are presented as fixed routine tasks. Students should be open to the concept of performing recurring learning tasks to reach their goal. This willingness to perform tasks is an innate characteristic described as 'autotelic personality' (Nakamura & Csikszentmihalyi, 2002). A growing number of studies have confirmed the existence of certain 'metaskills or competencies' that make some people prone to experiencing high levels of motivation and more susceptible to entering the state of flow and staying in it (Asakawa, 2004; Baumann, 2012; Teng, 2011). A person with autotelic personality owns these metaskills or competencies, which 'include a general curiosity for and interest in life, persistence, and low self-centeredness, which result in the ability to be motivated by intrinsic rewards' (Nakamura & Csikszentmihalyi, 2002, p. 93). The fourth and final condition is the presence of a suitable triggering stimulus. After the presence and proper alignment of other conditions, a triggering stimulus can spark interest and thus initiate a

DMC. A suitable trigger could be a simple incentive or could be a number of complicated reasons. Dörnyei et al. (2015b) elaborate:

Triggering stimuli for DMCs can be of a diverse nature. They might include an occasion for action, a long-awaited opportunity, the discovery of a missing piece of information, or a specific call to arms. Alternatively, DMCs may also be triggered in a way more akin to a type of reactance to a situation or event, which challenges an individual's positive self-image. (p. 69)

2.3.3 Applying DMCs in L2 learning contexts: Group DMCs

DMC theory was first presented as an individualised motivational phenomenon (Muir and Dörnyei, 2013) and it has been argued that this conceptualisation hinders pedagogical applications in L2 contexts (Dörnyei et al., 2015b). To situate DMCs in the paradigm of L2 education, the context of their application must be considered. This section therefore presents theoretical justification for group DMCs in which L2 motivation is a shared experience.

The L2 learning context is often a real-world language classroom filled with students (Dörnyei, 2005; Ushioda, 2009). In order to apply them to language classrooms, DMCs should therefore be reconceptualised as a group phenomenon. Dörnyei et al. (2015b, p. 142) assert that primary anecdotal sources and initial research evidence have verified that the individual DMC framework can be meaningfully expanded to apply to group levels 'where the motivational current in both frameworks is comparable in power and intensity.' The context of the real-world language classroom has many students and specific predetermined educational goals, and so the DMC must be a shared experience for the whole class or between members of smaller groups within the classroom.

Proponents of DMCs (Dörnyei et al., 2015b) argue that there are two major, well-documented concepts that can support the notion of a collective state of mind and hence group DMCs: group flow (Sawyer, 2006) and group vision (Dörnyei and Kubanyiova, 2014).

Sawyer (2006) supports the existence of flow on a group level, coining the term ‘group flow’ and stating that the concept of group flow is an extension of Csikszentmihalyi’s (1990) flow theory (explained briefly in Section 2.3.1), with one difference. Csikszentmihalyi (1990) describes the phenomenon as a conscious activity by an individual performer, whereas Sawyer (2006) refers to a group of performers entering this state of flow as one unit. It should be noted that Sawyer (2006, p. 148) examines highly creative activities that ‘focus on the most unstructured, most improvisational groups: musical and theatre ensembles,’ which require a considerable amount of natural talent. However, literature on the validity and effectiveness of creating a state of flow in an instructional setting already exists (Hamari et al., 2016; Shernoff and Anderson, 2014; Shernoff and Csikszentmihalyi, 2009). A considerable amount of empirical research supports the existence of group flow in instructional contexts, including L2 classrooms (e.g. Armstrong, 2008; Salanova et al., 2014). Walker (2010) states that when a group is playing games, not only does group flow exist, but participants also characterise it as more enjoyable than individual flow.

One key study that investigates group flow in an educational context is Gaggioli et al. (2011). The authors introduce a theoretical model called ‘networked flow’ for investigating creative collaboration, which integrates group flow and social presence by providing compelling arguments to support two assumptions. The first assumption states

that students can reach an optimal group status (group flow) if they develop a shared vision, or “we-intention,” in which actions of the individuals and those of the collective are in balance,’ resulting in creative thinking and the production of novel ideas (p. 41). The second assumption states that reaching optimal group status is a structured process that should be supported by a shared framework created by students and which results in the use of innovative ideas or artefacts. These two assumptions support group DMCs as having a vision (or shared vision) and a clear and salient structure, which are two of the main components of DMCs (see Section 2.3.1).

The second concept to support group DMCs is group vision (Dörnyei and Kubanyiova, 2014). Dörnyei and Kubanyiova (2014) argue that using goal-setting strategies may lead to an extrinsic collective vision shared by learners. For example, making students aware of the notion that their individual goals align with the purpose of group activities gives these activities goal-orientedness on a group level, thereby creating a collective vision shared by the students.

2.3.4 Empirical validation and the need for a practical DMC framework for real-world applications

The theoretical validation of DMCs presented in previous sections needs to be confirmed by empirical research. However, empirical studies that validate the theory of DMCs by examining the shape and confirming the components of a DMC are scarce and limited to a small number of studies conducted mainly by the theory’s proponents and their colleagues. The novelty of DMCs may explain this limited (albeit significant) number of studies. Reviewing empirical research serves the following purposes: first, it provides empirical evidence that validates DMCs (and group DMCs); and second, it shows that

group DMCs still lack a practical framework to support their application in the L2 learning context.

Henry et al. (2015) conducted the first systematic empirical study on DMCs. They investigated the descriptions of motivational behaviours of three migrant female learners of Swedish as an L2. This qualitative interview study revealed that the three components of DMCs were identified for all participants; however, the authors reported that their analysis was not able to detect a specific long-term goal, nor did the participants describe any personal future vision of themselves—the goal/vision component had to be deduced by the researchers. They stated that the reason why this component was not explicitly described relates to ‘the specific situations of these women . . . the process of moving to Sweden has been a life-changing experience; therefore developing a space for themselves in Swedish society is, in itself, a powerful visionary journey’ (p. 342).

The next study was by Safdari and Maftoon (2017), who conducted a qualitative case study that aimed to validate DMC theory by examining the existence of its components. The study had only one participant, as the researchers stated that finding learners who are caught up in a DMC is not easy. The participant was a 33-year-old Persian-speaking woman who had been offered the opportunity to move to Italy. The authors conducted interviews with the participant, who reported being thrilled about the prospect of living in Italy. She therefore started learning Italian enthusiastically and with full commitment for four months in order to reach her goal of learning the language before she travelled and to fulfil her vision of herself living in Italy in the future. Safdari and Maftoon (2017) observed that the participant experienced a motivational surge akin to the one described by DMC theory. They stated that the results of the study ‘confirm the existence of DMCs

and the validity of its proposed structure. The empirical evidence supports the significant role of goal-orientedness, salient facilitative structures, and positive emotionality' (p. 43).

Another study that investigated the validity of DMC theory was conducted by Zarrinabadi and Tavakoli (2017). The authors examined whether DMC's key components could account for the motivational surge of two Iranian teacher trainees. Analysis of qualitative interviews showed that all three core components of DMCs were identified in the two participants' data. Analysis also confirmed that 'the DMC construct proposed by Dörnyei and his associates (2013, 2014) accounted well for such a motivational experience,' which aided in validating the theory (p. 164).

Further support for DMCs was reported in a study by Selçuk and Erten (2017). The authors conducted a qualitative case study on two university-level pupils to investigate their L2 motivational patterns. Data were collected over six weeks through teacher focus-group interviews, semi-structured interviews, and motivation-tracking graphs (self-plotted graphs that show fluctuations in participants' motivation). Retrodictive qualitative modelling was employed to generate the learner prototypes. Data analysis of motivational patterns of the first student identified a motivational surge as described by DMC theory. Further analysis revealed the existence of all three components of a DMC. However, the data showed that the second student did not experience a DMC. The authors concluded that the first student had a strong personal vision and an explicit long-term goal, which provided her with energy to accomplish proximal subgoals and gave structure to the DMC. It was also reported that the lack of personal vision or interest in the educational goal (learning the L2) meant that the second student's motivational pattern 'drifted aimlessly without a clear focus' (Selçuk and Erten, 2017, p. 139).

Additionally, an unpublished, yet important, dissertation on DMCs was written by Muir (2016), who contributed to the first paper published on DMCs (Muir and Dörnyei, 2013). The dissertation included two empirical studies—one to validate the DMC construct and another to examine group DMCs. Muir's (2016) first study aimed to investigate the recognisability of the DMC phenomenon on a large scale around the world and to examine its manifestations across different demographic dimensions—specifically nationality, age, and gender. The researcher used an online questionnaire to survey 1,452 L2 teachers and students of 71 nationalities. The study sample was very broad in terms of age (from 16 to 61 years of age), gender (72% female and 28% male), and geographical placement (across six continents). The results confirmed that DMCs are a well-recognised phenomenon in society, regardless of any demographic factors. Muir (2016) concluded that the study's results presented evidence attesting 'to the universality of DMCs,' as her dataset showed DMCs 'to largely transcend gender, age, and nationality boundaries' (p. 187). Moreover, she stated that the participants' positive attitudes towards DMCs similarly confirm 'the universality of DMC experiences in these terms [gender, age and nationality]' (p. 187). Muir's (2016) second study was qualitative research conducted at a language school that is part of a prominent Australian university, where she utilised an intervention project structured around the concept of project-based learning (PBL). The primary goal in this study was to explore the possibility of purposefully initiating group DMCs in an L2 course. A secondary goal was to gauge how successful facilitating group DMCs in such a course would be. Participants in this study were 17 business-English learners from eight different nationalities and of various ages (18 to 40 years old, but mostly in their 20s). After analysing the Skype interviews and personal diaries that were used to collect data, Muir concluded that there is 'strong support for the contention that

the course was successful in its aim to facilitate a group DMC experience in students (and teachers!)’ (p. 201).

Earlier discussion in Section 2.2 showed the theoretical justification for DMCs by demonstrating how the development of the L2 motivation literature led to the conceptualisation of DMCs. The empirical studies reviewed above aimed only to validate DMCs as a phenomenon by confirming their existence and structure. The studies did not attempt to initiate group DMCs in L2 classrooms (with the exception of Muir’s (2016) second study). DMCs are presented by proponents as a universal human phenomenon that happens spontaneously (Muir and Dörnyei, 2013), but these proponents have provided little advice on how to initiate it in L2 classrooms (Dörnyei et al., 2015b). Group DMCs must be intentionally initiated and purposefully designed to use them to enhance L2 motivation and to conduct research. Therefore, if we aim to use DMC theory as a tool to facilitate L2 motivation specifically, a new DMC framework should be designed that is tailored precisely to serving this goal. To date, there has been little practical advice on how to design tasks that can function as triggers to spark students’ interest and consequently initiate a DMC. This is evident in Dörnyei et al.’s (2015b) statement:

In discussing what such triggers might look like in real life and how they might work, Dörnyei and Kubanyiova (2014) point out that the professional literature is very thin on describing the ways by which people can prime their vision; that is, how they can activate and re-activate their desired future selves. However, this is an area where language teachers, perhaps unknowingly, have a great deal of experience. (p. 72)

By ‘language teacher experience,’ Dörnyei and Kubanyiova (2014) are referring to the familiar classroom tasks used regularly in L2 classes. They suggest that these tasks could be used as part of a framework based on DMC theory as triggers to prime students’

motivation and thus initiate directed motivational currents in an L2 classroom. The present research proposes that gamification principles can be used to trigger group DMCs and design tasks (proximal subgoals). There are two reasons that support gamification as a suitable framework for integration with DMCs. First, the abundance of empirical research that proves gamification's ability to grab students' interest, modify their behaviour, and influence their motivation. Second, a motivation theory, such as DMC theory, has the power to maximise gaming element affordances and reduce their negative impact by guiding education designers and teachers in the types of game design elements to use and why, as will be further explained in the next section.

2.4 Gamification

This section aims to introduce the concept of gamification as a practical framework that can be integrated with DMCs. In Section 2.4.1, a definition of gamification is provided in order to distinguish it from other similar concepts. Section 2.4.2 contains three subsections; first, I review the situation of education in gamification research. Next, in Section 2.4.2.2, motivation theory in gamification is reviewed and discussed to demonstrate that, in most cases, the use of gamification principles is not based on a theory of motivation. This subsection (Section 2.4.2.2) also presents gamification design elements that are most frequently used while gamifying the learning process. Lastly, in Section 2.4.2.3, I present Nicholson's (2015) theoretical framework of meaningful gamification, which will later be integrated with the DMC theory of motivation.

2.4.1 Defining gamification

The concept of gamification has been discussed and described by many researchers from different perspectives in a variety of fields. As a result, there is no consensus in the

literature regarding what the term ‘gamification’ exactly means; e.g., concepts such as gamification, games, game-based learning, simulation, and serious games are still substituted for one another in many articles (Çeker and Özdaml, 2017; Wenk and Gobron, 2017). Therefore, a clear definition is needed for the current study. In this study, I review the two most frequently cited definitions and discuss the differences between them. Then, by combining the two definitions, I provide a new definition that may be more suitably applied in the present study.

The term ‘gamification’ has been defined as ‘the use of game design elements in non-game contexts’ (Deterding et al., 2011b, p. 1). Deterding et al. (2011b) recognise that this definition is broad, although they argue that this broadness is necessary to cover the wide range of gamification examples across various fields. Although this definition is purposefully broad, it distinguishes between gamification and similar concepts, such as serious games and playful interaction. Due to its broadness, this definition requires further explanation so that it may convey the full meaning of the concept. To establish what ‘game design elements’ are, the term ‘game’ must be explained. Juul (2011, p. 36) states that ‘a game is a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable.’ Game designers make certain design decisions to produce elements that encourage play and create an experience for players. According to Suits (1967, p. 156), ‘To play a game is to engage in activity directed toward bringing about a specific state of affairs, using only means permitted by specific rules.’

The second definition of gamification is offered by Huotari and Hamari (2017 p. 25), who state that ‘gamification refers to a process of enhancing a service with affordances for gameful experiences in order to support users’ overall value creation.’ While Deterding et al.’s (2011b) definition highlights the method of gamifying a system, Huotari and Hamari (2017) argue that their definition identifies the goal of gamifying a system as ‘creating a gameful experience.’ They state that defining gamification as the process of incorporating ‘game design elements in non-game contexts’ is problematic because it does not necessarily create a gameful experience. Huotari and Hamari’s (2017) focus on the goal of gamification is justified, as using game design elements that do not create a gameful experience and do not fulfil the aim of gamifying a system may reflect negatively on the learning process (Domínguez et al., 2013). As noted by Deterding et al. (2011a), the goal of gamifying a system is to increase engagement, enhance motivation, and modify behaviour by creating a game-like experience that turns the accomplishing of tedious tasks into an attractive activity that captures users’ interest and engages them for extended periods of time.

In the current study, I combine the two definitions to include the method and goal of gamification as conditions in gamifying the learning process, then relate the definition to L2 motivation in the following way: gamification is the process of creating gameful experiences through incorporating game design elements in learning contexts in order to enhance L2 motivation.

2.4.2 Three areas of research in gamification: Gamification in education, motivation theory, and gamification design elements in education

A significant amount of research has been conducted on gamification in many fields, including business, marketing, education, in- and pre-service training, public health, and

tourism, among others (Costa et al., 2017). Because gamification has been applied in a wide range of fields, systematic review articles are used to provide an overview of the current research trends and areas of focus. The aim of this subsection is to illustrate the relationship between education and gamification. It also expresses the general agreement in the literature that gamification has the ability to affect motivation and influence behaviour. The next subsection, Section 2.4.2.2, examines the theories of motivation that have been used in the field of gamification across a number of areas of study in general and with regard to education in particular. I demonstrate that the use of game design elements in education is not sufficiently connected with motivation theory and thus their use must be supported by a suitable theory of motivation. The same subsection illustrates the most commonly used game design elements in education before discussing them in detail while reviewing the framework of meaningful gamification in Section 2.4.2.3.

2.4.2.1 Analysis of the current trends in gamification research: The relationship between gamification and education

Kasurinen and Knutas (2018) examined 1,164 studies on gamification across all fields to identify research trends and topics. They concluded that the most prevalent research focus is based on proof-of-concept studies (308 out of 1,164 studies). These proof-of-concept studies describe when a working gamification prototype or focus is being placed on the examination of the introduction of game design elements to systems. These types of studies identified a wealth of game design elements and their effects in a variety of contexts. The top 10 subjects that represent 61% of the proof-of-concept studies are papers within or those that closely relate to the field of computer science, such as software engineering or information systems. The two dominant contexts for the proof-of-concept reviewed papers examine gamification as a computer science teaching tool (29 studies) and/or as a motivation improvement tool (25 studies). However, within these two

contexts, among others, Kasurinen and Knutas (2018) identified six topics that are covered by the examined dataset: education, industry, physical activity (for children), crowdsourcing, healthcare through mobile applications, and software and research. The authors report that education is the dominant topic in the field of gamification research. Between 2010 and 2015, the span of the systematic review, on a yearly basis the number of published studies that relate to education is greater than that of other topics within the gamification domain. However, while Kasurinen and Knutas's (2018) systematic review shows the general trends, contexts, and topics in gamification research, it does not explore the effectiveness of game design elements (i.e., the result of the proof-of-concept studies) or the theoretical basis for using game design elements in a specific context. Therefore, further discussion is required in order to examine these areas.

To explore the effectiveness of gamification, Hamari et al. (2014) conducted a systematic review titled "Does Gamification Work?," in which they considered 24 peer-reviewed empirical papers on gamification across a number of fields. In other words, they investigated whether game design elements possess motivational affordances that can generate positive psychological effects that, in turn, may result in desired behavioural changes. The study results were reported on all reviewed papers and were not associated with individual fields. However, education was the dominant field identified in the reviewed papers (nine out of 24). Hamari et al. (2014) concluded that gamification does work and has positive effects on motivation and engagement, although some limitations do exist. The authors found that the studies were mostly quantitative in nature (70%), and the studies' positive conclusions were the result of directly linking the examined game design elements and study outcomes in a statistical manner. The quantitative nature of the reviewed studies suggests that the process of how gamification enhances motivation has

not been thoroughly investigated (e.g., Dong et al., 2012; Fitz-Walter et al., 2011). Hamari et al. (2014) also observed that the perceived affordances of gamification are often linked to two major themes: the context of implementation and the users' characteristics. An example that clarifies the relationship between these factors can be observed through the way two studies utilised the element of 'badges.' First, Hakulinen et al. (2015) conducted an empirical study that examined the effects of digital badges on students' behaviours in a university-level computer science course and concluded that badges can change behaviour. They found statistical distinctions between the control group and the experimental group in the time spent per exercise and the number of completed exercises, among other parameters, to support the study's positive results. Moreover, most students reported that badges had a positive effect on their motivation. In contrast, Hamari (2013) reported on a failed experiment in which he used badges to gamify an e-commerce site. He stated that badges were chosen based on previously reported positive effects in other contexts. He found that gamifying a system oriented towards logical behaviour, such as purchasing decisions in e-commerce sites, is difficult because users normally want to optimise financial decisions by spending as little money as possible. The two studies reveal that the effects of game design elements depend on the context of implementation and users' attributes.

In another systematic review study that examined the effect of digital gamification, Seaborn and Fels (2015) reviewed 32 studies in a variety of disciplines and provided a number of important conclusions. Their study confirms that gamification is gaining popularity in education, as 26% of the surveyed papers were conducted on education; health and wellness, online communities and social networks, and crowdsourcing were ranked far behind at 13% each. When investigating gaming elements, Seaborn and Fels

(2015) found that 20 studies generated positive results, indicating that the introduction of gamification fulfilled the study's aim of encouraging the end-user's participation (65% of papers) and/or change in behaviour (32% of papers). The remaining 12 studies offered negative or neutral results, suggesting that the introduction of gaming elements decreased levels of motivation and engagement in some cases, while it posed no noticeable effect in other cases. The authors state that the reason for such varied results seems to be 'context-specific: similar implementations of gamification in different domains did not necessary impact participants in the same way' (p. 28).

The discussion in this section shows that the use of gamification is rapidly increasing in the field of education. It also reveals that the use of game design elements does, in fact, affect motivation and influence behaviour. However, gamification effects, whether they be positive or negative, are often linked with the context of application and/or the unique characteristics of the user. This means that using game design elements will produce different results in different contexts and with different users; thus, the only way to determine the effects of a gaming element is to examine it empirically within the target context (Hamari et al., 2014; Sailer et al., 2017). This approach neglects the key role of motivation theory in gamification, as one of the main purposes of gamifying a system is to enhance motivation. In my view, using gamification with a theory that explains how motivation works is important because it can minimise the process of testing game design elements in as many contexts. A suitable motivation theory can inform educators about when and why game design elements should be used to maximise benefits and reduce negative effects. Therefore, the situation of motivation theory in gamification research and game design elements most frequently used in gamifying education are reviewed and discussed in the following section.

2.4.2.2 Motivation theory in gamification and the use of game design elements in education

Systematic review papers are used to examine the use of motivation theory in gamification research and the use of game design elements in education. Each of these systematic review papers typically covers both aspects, and thus the review of these two aspects is combined into one section.

According to Nacke and Deterding (2017), there are two noticeable trends in gamification empirical research. The first trend (from its beginnings to the mid-2000s) was framed by the questions ‘what?’ and ‘why?’; for example, as in Lee and Hammer’s (2011) article “Gamification in Education: What, How, Why Bother?” In their article, Lee and Hammer state that students’ lack of motivation and engagement are a major problem in schools and that gamification can aid in solving this problem. The authors assert that ‘if gamification is to be of use to schools, we must better understand what gamification is, how it functions, and why it might be useful’ (p. 1). Nacke and Deterding (2017) continue by claiming that the second and current trend in gamification research focuses on asking ‘how?’ and ‘when?’ They add that current gamification research displays signs of maturity in three main areas: theory-driven empirical studies, design methods, and application. The focus is therein placed on how gamification’s function highlights the importance of situating gamification in motivation theory.

Existing empirical research has revealed the effects of game design elements as being both positive and negative in many contexts (see section 2.4.2.1). However, because these results are linked to individual differences in the context of application and learners, the generalisation of research results and the development of a comprehensive gamification

theory become significantly limited. The task of accounting for the effects of game design elements by examining them in a variety of contexts cannot result in a robust theory of gamification due to the range of variables present in each context. For example, because motivation is a human experience, researchers must account for the learner, who is the source of motivation and the target of gamification theory. The learner is the most complex and diverse component of any context, which renders each individual and, consequently, every context unique. Therefore, examining the effects of game design elements alone is not sufficient for explaining how and/or why gamification functions. Understanding how gamification affects motivation must be supported by a theory of motivation that accounts for the complexity of the learner and the dynamic nature of motivation.

The systematic review by Hamari et al. (2014) suggests that theoretical justification for the use of gamification is often neglected in empirical studies (as discussed earlier in Section 2.4.2.1). This is confirmed by Seaborn and Fels (2015) in their systematic review (discussed earlier, in Section 2.4.2.1), in which they assert that ‘the majority of applied research on gamification is not grounded in theory and did not use gamification frameworks in the design of the system under study’ (p. 28). The authors provide a systematic survey on the limited number of published studies and review papers in the field of human–computer interaction, which provided the theoretical foundation to support the use of game design elements (Table 1).

Table 1 Theoretical foundations used in gamification frameworks (Seaborn and Fels, 2015, p. 19)

Theoretical foundation	Gamification study(s) that used it
------------------------	------------------------------------

Self-determination theory (Ryan and Deci, 2000a)	Aparicio et al. (2012), Nicholson (2012a)
Intrinsic and extrinsic motivation (Ryan and Deci, 2000b)	Blohm and Leimeister (2013), Nicholson (2012a), Sakamoto et al. (2012)
Situational relevance (e.g., Wilson, 1973)	Nicholson (2012a)
Situated motivational affordance (Deterding, 2011)	Nicholson (2012a)
Universal design for learning (Rose and Meyer, 2002)	Nicholson (2012a)
User-centred design (Norman, 1988)	Nicholson (2012a)
Transtheoretical model of behaviour change (e.g., Prochaska and Marcus, 1994)	Nicholson (2012a), Sakamoto et al. (2012)

The theory-driven gamification studies in the above table represent merely 13% of the reviewed papers (four studies out of 32) in Seaborn and Fels's (2015) systematic review. This small percentage of studies coupled with the fact that none of them are empirical studies in education indicate that the application of gamification in education is not based on theory.

2.4.2.2.1 Gamification in the field of education: Most frequently used game design elements

Three prominent articles review gamification studies specifically in the field of education. The first is the study of Nah et al. (2014), in which the authors provide summaries of 15 studies in order to identify the game design elements used extensively in different learning contexts. Eight game design elements were identified: points, levels/stages, badges,

leaderboards, prizes and rewards, progress bars, storylines, and feedback. The study did not include any papers that discuss motivation theory in relation to gamification. The second article is a systematic mapping study conducted by Dicheva et al. (2015), in which the authors reviewed published empirical research focused on the application of gamification in education. They employed a thematic analysis to identify game design elements, types of application, education level, academic subject, implementation, and reported results. The study found that the most commonly used game design elements are visual status, social engagement, freedom of choice, freedom to fail, and rapid feedback. It was also determined that articles discussing the concepts of personalisation and goals, which relate to motivation theory, are rare. The analysis of Dicheva et al. (2015) also shows that most studies reported positive results including, but not limited to, significantly higher engagement in educational projects, forums, and other learning activities, increased attendance and participation, and positive change in students' behaviours. Moreover, students reported that gamified courses are more stimulating, motivating, and easier than regular courses. However, the data collected by Dicheva et al. (2015) did not include any discussion of theoretical justification from the field of motivation theory. The third article is a systematic mapping of gamification applied to education and conducted by de Sousa Borges et al. (2014). The authors reviewed 26 studies and found that most studies focused on investigating how gamification motivates students and improves their skills. However, the relation of the effects of gamification on motivation was not explained through motivation theory, but rather through the reaching of certain objectives that the authors claim fall under the concept of motivation. As de Sousa Borges et al. (2014) explains, 'After an in-depth analysis of these studies, we found that several objectives fall under the term "motivation". Thus, we were able to identify

seven different objectives: Mastering skills; Challenging; Engagement; Improving learning; Behavioral change; Socialization; and Guidelines' (p. 219).

This subsection reveals that empirical studies on gamification in the field of education are not grounded in motivation theory. It also identifies the most frequently used game design elements in the gamification of education. Gamification has seen success in commercial fields such as social application, business, and marketing (Lee and Hammer, 2011) by proving its noticeable and immediate ability to grab interest and positively influence behaviour. In my view, the appeal of gamification's observable and immediate effects has led to a disregard of the theoretical basis and a focus on short-term results in the application of game design elements in the context of education.

2.4.2.2.2 The need for motivation theory in gamification

Since the goal of gamification involves enhancing motivation and changing behaviour, researchers are on the right track in using motivation theories (see Table 1) to support and understand the use of game design elements, even though these attempts are very rare. Transitional points in the developments of motivation theory (see Sections 2.1 and 2.3) suggest that a suitable motivation theory should implement the following three functions:

- a. View motivation as a universal human phenomenon to allow for a broader generalisation of results;
- b. Consider motivation as a CDS to account for the complexity of the user and the dynamic nature of the context; and
- c. Explore motivational change over time to account for the dynamic nature of motivation.

Using game design elements with a suitable theory of motivation that provides an understanding of motivation may yield positive results in support of L2 learning. In my opinion, the integration of a gamification framework with motivation theory would aid educators' use of the right game design element to reach the desired outcome. Therefore, the current study proposes that the DMC theory of motivation, which satisfies the three factors mentioned above, be used.

2.4.2.3 Game design elements in education: A theoretical framework of meaningful gamification

In the previous subsection, the game design elements that are most commonly used in the gamification of education were reviewed. Their reported influence—whether that be positive or negative—was mostly linked to the context of application and the learner. To the best of my knowledge, only two studies in the field of education linked the reported influence of game design elements to a theory of motivation rather than to the learner and/or the context. The first of these studies is that of Sailer et al. (2017), who analysed game design elements in relation to their influence on the fulfilment of basic psychological needs. The second study is the framework of meaningful gamification that was developed by Nicholson in a succession of papers (2012a, 2012b, 2013, 2015). Both of these studies relate the effects of game design elements to self-determination theory (Ryan and Deci, 2000a) and, more specifically, to the concept of extrinsic and intrinsic motivation (Ryan and Deci, 2000b). The concept of extrinsic and intrinsic motivation stipulates that the learner becomes internally motivated when he or she has a genuine interest in a task or subject without the incentive of an external reward, as the performance of the task is its own reward. On the other hand, external motivation stems from external rewards and it can—and should—be internalised. Unlike the study conducted by Sailer et al. (2017), Nicholson's (2015) framework of meaningful gamification is presented as

a framework that is developed specifically to function as a guide for gamification designers. This makes the framework a suitable candidate to be integrated with DMC theory. Next, I present the framework and its structure, followed by a discussion that explains why its structure makes it suitable for integration with DMC theory.

Nicholson's (2015) framework divides gaming design elements into two models according to their effects on motivation. Nicholson refers to the first model as BLAP (Badges, Levels/Leaderboards, Achievements, and Points) or reward-based gamification, and it targets extrinsic motivations. Nicholson argues that increasing external motivations toward a certain behaviour is a relatively straightforward process that entails the rewarding of desired behaviour—a valuable approach to reach certain short-term goals.

The second model is labelled RECIPE (Reflection, Exposition, Choice, Information, Play, and Engagement) or non-reward-based gamification, and it focuses on intrinsic motivation (Table 2). Nicholson (2015, p. 4) argues that intrinsic motivation can be built by using the RECIPE design elements, which provide 'a variety of experiences and ways of engaging to raise the chances that each participant can find something meaningful.' These elements are presented as design concepts that, when applied, should result in different learning experiences. Nicholson suggests that these experiences would encourage students' interest in the learning process without the incentive of an external reward, thus increasing internal motivation.

Table 2 Six elements of RECIPE gamification inspired by game design (Nicholson, 2015, p. 5)

Game design element	Targeted experience
Reflection	Assisting participants in finding other interests and past experiences that can deepen engagement and learning
Exposition	Creating stories for participants that are integrated with the real-world setting and allowing them to create their own
Choice	Developing systems that place the power in the hands of the participants
Information	Using game design and game display concepts to allow participants to learn more about the real-world context
Play	Facilitating the freedom to explore and fail within boundaries
Engagement	Encouraging participants to discover and learn from others interested in the real-world setting

However, the integration of game design elements in education with regard to the concept of extrinsic and intrinsic motivation has been criticised, called superficial, and deemed harmful in many cases. For example, Francisco-Aparicio et al. (2013) state that increasing extrinsic motivation is not sufficient for defining gamification as a successful strategy. Wu (2012) warns against ‘gamification backlash,’ which occurs when the same game design elements are used repeatedly. This repetition makes students bored with the process and defeats the purpose of gamification. Moreover, Robertson (2010) refers to the superficial application of gamification as ‘pointification,’ which does not support intrinsic motivation. The surface application of gamification under the view of intrinsic versus extrinsic motivation turns the process into a simple reward programme that neither

supports long-term engagement nor enhances intrinsic motivation. This programme may even be considered harmful because extrinsic motivation that is dependent on a reward replaces intrinsic motivation, as Deci and Ryan (2004) determined after reviewing initial studies.¹ Reward-based gamification usually causes a spike in engagement, which is positive in the short term, but as soon as rewards are taken away, motivation declines unless students are kept ‘in that reward loop forever’ (Zichermann and Cunningham, 2011, p. 27, cited in Nicholson, 2015). Therefore, the establishment of a framework that guides gamification designers toward utilising game design elements in a meaningful way is an important task. For example, Seaborn and Fels (2015, p. 14) noticed that, despite the popularity of gamification, little empirical research has been conducted to ‘validate gamification as a meaningful concept and provide evidence of its effectiveness as a tool for motivating and engaging users in non-entertainment contexts.’ The following paragraphs address this criticism from the perspective of Nicholson’s (2015) framework itself as well as the perspective of the present research.

Nicholson (2015) addresses the harm of the superficial application of game design elements according to their intrinsic versus extrinsic motivational effects by arguing that when targeting intrinsic motivations (as in the case of the long process associated with learning an L2), reward-based game design elements that only promote extrinsic motivation should be used with a specific purpose and then removed, as their benefits are typically short-lived and do not accommodate long-term motivation. In other words, the BLAP model, which increases external motivation, should be used in such a way that supports the concepts identified in the RECIPE model in order to increase internal

¹ The studies reviewed by Deci and Ryan were Deci, 1971, 1972a, 1972b; Kurglanski, Friedman, and Zeevi, 1971; Lepper, Greene, and Nisbett, 1973, pp. 10–11.

motivation. Once the learner is deemed to be internally motivated by experiencing learning through concepts in the RECIPE model, reward-based elements should be taken away.

In my view, the elements of the two models are neither inherently harmful nor beneficial, and their effect depends on how and when they are used. The BLAP and RECIPE elements should be utilised toward a specific goal within a motivational system that regulates their use within the system design. Nicholson's classification of game design elements in terms of their motivation toward reward-based and non-reward-based effects is beneficial for the fundamentally long-term process of language learning only in the event that it is integrated with a theory of motivation, such as DMC theory. This integration would allow game design elements to be treated as building blocks for the designer to choose the right elements for a specific goal which limits harmful experimentation. In other words, gamification elements in the BLAP and RECIPE models may be deployed through different phases of the motivational system for different reasons, which would help initiate and sustain a DMC by supporting and scaffolding the routine tasks. This contrasts with Nicholson's (2015) view, which perceives extrinsic motivation as a harmful aspect that should be removed after it serves its purpose of fostering experiences within the RECIPE model that are intended to increase intrinsic motivation. Therefore, the present study suggests that the framework for meaningful gamification is suitable to be integrated with DMCs, as it gives game design elements meaning by classifying them according to their motivational effects (extrinsic and intrinsic). This classification would enable education designers to utilise such elements in a directed motivational current after considering their effect.

2.5 Integrating the theoretical framework for meaningful gamification and the DMC theory of motivation: A gamified directed motivational current

After reviewing the existing literature that explains the development of motivation theory in education (Section 2.2), the theory of DMCs (Section 2.3), and gamification (Section 2.4), it has become clear that DMCs require a practical framework that can grab students' attention and influence their behaviour in an instructional education setting in order to enable theory that can be implemented in an L2 classroom. Moreover, it is clear that gamification lacks a suitable motivation theory that provides a comprehensive understanding of its use. I propose that DMCs and the framework of meaningful gamification be integrated into a joint gamified directed motivational current (GDMC). DMC theory should provide gamification with reasoning as to why and when game design elements should be employed, whereas the framework for meaningful gamification should inform DMC theory as to how students' interest should be triggered and retriggered, thus initiating a motivational current by gamifying the learning process. The next section presents the GDMC framework and discusses differences between it and a DMC. This discussion explains the components of gamified activity in GDMCs, explores why gamifying tasks is necessary, and determines how this change affects students' motivation. Subsequently, the application of GDMCs through educational interventions is discussed. Finally, the prominent features of GDMCs are presented and discussed.

2.5.1 The gamified directed motivational current

A DMC is a theoretical construct that represents the overall shape of a single motivational surge wherein motivation is created by a person's desire to achieve a particular

goal/vision. Gamification functions on the task level (labelled ‘activity’ in a GDMC) by making task performance enjoyable. A GDMC integrates both concepts. The main difference between DMCs (Figure 1) and GDMCs (Figure 2) lies within tasks, as tasks are gamified in a GDMC.

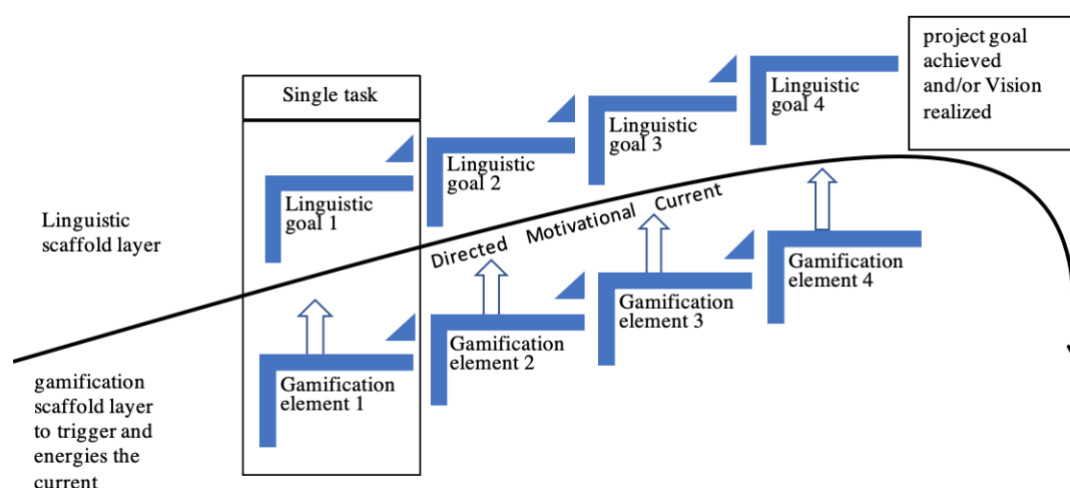


Figure 2 The structure and shape of the GDMC framework

As discussed earlier in Section 2.3.1, tasks in a DMC are called proximal subgoals and are described in a specific way. They are fixed behavioural routines that are preformed repeatedly; for example, the task of memorising 10 new vocabularies every week. Feelings of enjoyment are created through accomplishing rather than performing the task. These positive feelings motivate the student to repeat this process of accomplishing tasks until the goal is reached or the vision is realised. Proponents of DMC theory provide limited practical advice or guiding concepts for task design (e.g., Dörnyei et al.’s, 2015b seven frameworks for focused interventions, discussed in Section 2.5.2). Therefore, the following paragraphs discuss aspects of the DMC theory’s description of tasks from the perspective of the GDMC framework.

2.5.1.1 Components of activities in GDMCs

Because little practical instructions on task design are provided in DMC theory, the GDMC framework proposes that a task should possess two components: a gamification method and a linguistic goal. In other words, GDMCs utilise gaming elements to gamify the process of, for example, reaching the linguistic goal of learning 10 new vocabularies every week. Therefore, while proximal goals in DMC theory are called ‘routine tasks,’ in the GDMC framework I refer to them as gamified challenging activities. Admittedly, proximal goals in the GDMC intervention (i.e., performing the gamified weekly activity) are more performance-oriented goals which have been identified the literature (discussed in Section 2.2.1) to promote extrinsic motivation rather than mastery-oriented goals that focus on mastering new skills or acquiring new knowledge. However, the aim is for the game design elements to trigger interest and motivate students to perform the activities, thus fulfilling the linguistic goal.

Feelings of enjoyment develop while performing the immediate gamified activity and are supplemented by the enjoyment that arises from accomplishing the linguistic goal. The two sources of enjoyment should aid in initiating a DMC, and the balance between the activity’s two components should be carefully considered; otherwise, applying game design elements may produce negative results. However, Faiella and Ricciardi (2015) warn that putting too much emphasis on gamification elements can turn the whole learning process into an insignificant game, thus it is imperative that the students realise that game design elements, while fun and exciting, are a way for their groups to acquire the important linguistic skills. For example, practising speaking skills is a linguistic goal that can be gamified with a suitable game design element(s).

2.5.1.2 Nature of activities in GDMCs

As mentioned earlier in this section, tasks in DMC theory are described as a set of recurring routines. Describing tasks as ‘*regular, fixed* divisions of action, such as the going to the gym every evening or the learning of ten new vocabulary items every day’ (Dörnyei et al., 2015c, p. 100 [emphasis added]) is problematic in education. While adhering to a strict routine is beneficial in particular cases, this notion does not work in education generally and in language learning specifically for two reasons. First, repetition does not necessarily entail or invoke progress, in contrast to Dörnyei et al.’s (2015b) claim. Second, in L2 learning, the student must acquire and practise a variety of skills that are impossible tasks to integrate with repetitive routines. The GDMC framework suggests that a sense of progress be created by gradually increasing the difficulties of activities. Through each activity, the learner aims to acquire or enhance a specific skill, and the completion of the next activity should require that the previously learned skills be applied. Applying this construct through an educational intervention aims to gradually raise motivation and advance the learning process.

2.5.1.3 Activities as triggers in GDMCs

Dörnyei et al. (2015b) highlight the importance of triggers by stating that, after the appropriate conditions are aligned, finding suitable triggers to initiate a group DMC is a critical step in the project design (discussed in Section 2.3.2). The function of a trigger is to spark initial interest and command students’ attention. Perhaps due to the novelty of the theory, DMC research (Dörnyei et al., 2015b; Muir, 2016) only suggests that the concept of triggers ‘ignite’ motivation and start the current; the authors, however, did not provide detailed practical ways to initiate group motivational current within classrooms (see Section 2.3.2). The gamified activity in GDMCs can be used as triggering elements

to engage students. There is no shortage of researchers who advocate gamification's ability to engage users (Cugelman, 2013). According to Huang and Hew (2018), the literature generally agrees that basic game design elements (such as points, badges, leaderboards, etc.) can function as triggers to affect users' behaviours in particular ways and to acknowledge users' psychological needs.

In Section 2.4.2.3, I argued that game design elements in the BLAP and RECIPE models should be seen as building blocks available for the designer to be deployed across the motivational current to initiate and sustain L2 motivation, thus creating a GDMC. However, to apply the GDMC framework in an L2 learning context, a strategy that links all the gamified activities in the GDMC experience is required. Such a strategy would make implementing the GDMC framework in L2 classrooms easier, as it will function as a template to be used in practical application.

2.5.2 Features of an effective GDMC-based focused intervention that aims to operationalise DMC theory in an L2 classroom context

The discussion in Section 2.3.3 demonstrates the theoretical basis of group DMCs and claims that applying group DMCs in an instructional setting such as an L2 classroom is valid and has potential. However, DMC theory is a theory that explains a motivational phenomenon. In order to make it applicable in a classroom full of students in general and to use it to raise L2 motivation in particular, a practical strategy must be developed. For example, Dörnyei et al. (2015b) argue that DMCs, as a concept, require a practical framework to function in real-world classrooms:

If DMCs do function at group levels, it is conceivable to address the possibility of designing strategies which help to promote their emergence, and thus use them as a

basis for the creation of frameworks for focused interventions to motivate entire classes of L2 learners collectively. (p. 141)

It has been suggested that an educational intervention is an adequate, practical strategy to use in the classroom to initiate and sustain group DMCs (Dörnyei et al., 2015b; Ibrahim and Al-Hoorie, 2018; Muir, 2016). Similarly, educational interventions have the potential to function as the practical strategy for the GDMC framework suggested in the current study.

Proponents of DMC theory Dörnyei et al. (2015b) suggest seven frameworks for focused interventions based on DMC theory and label those intervention designs as educational projects. Dörnyei et al. (2015b) draw largely on the literature of educational projects and put forward these the seven frameworks for focused interventions which depict guidelines designed specifically to purposefully facilitate group DMCs within diverse L2 classroom contexts (Muir, 2016). Recently, Muir (2020) revisited methods of applications of DMC theory in L2 learning. In her book, Muir introduced two empirical studies that explored the universality of DMCs and the implications for pedagogy. She also reflected on the seven frameworks for focused interventions introduced in Dörnyei et al. (2015b) and reasserts that the implementation of DMC theory through an intensive project of focused interventions is the most fruitful line for future research.

On similar lines, the current study implements an educational intervention based on the GDMC framework in the form of a classroom contest (discussed in detail in Section 3.5). It seems that, in DMC literature, the terms ‘educational intervention’ and ‘educational project’ are used to essentially refer to the same construct—a practical strategy for

applying group DMC in a taught L2 setting. Therefore, before discussing the GDMC intervention design (i.e., the classroom contest), I provide a brief overview of educational projects' main features, which include educational interventions by extension, to show how they lend themselves to initiate and sustain GDMCs in the classroom.

There is no consensus among researchers as to what constitutes an educational project (Condliffe et al., 2017; Henry, 2012), which makes the adequate implementation and designing of classroom projects difficult. However, the absence of a concrete definition for an educational project is not necessarily a weakness, as some researchers argue that limiting classroom projects to a fixed definition may restrict them from functioning as a dynamic concept (Condliffe et al., 2017), inhibit students' creativity (Darling-Hammond, 1993), and generate teachers' resistance due to its clashing with their professional principles (Achinstein and Ogawa, 2006). Therefore, researchers have suggested that educational projects be defined on the basis of their most prominent characteristics or conditions (Blumenfeld et al., 1991; Bradley-Levine et al., 2010; Savery, 2015; Stoller, 2006). In other words, there are a number of broad features reported in the literature that are present in most educational interventions, and in order for a classroom project to be deemed effective educational intervention, it must include these features. Nonetheless, there is no agreement among researchers as to what or how many features a project must include to be considered an instance of learning through educational project (Condliffe et al., 2017). In my view, there are certain educational project features that must be considered when attempting to facilitate GDMCs in the classroom through an educational intervention. Therefore, I now discuss how these project features relates to the current study's GDMC educational intervention, which mainly aims to raise students' L2 motivation.

The first feature of educational projects is offering a proper introduction of the concept to the students. Due to the collaborative nature of projects in which students construct meaningful and personal artefacts, implementing an educational project in L2 classrooms may be an overwhelming experience for teachers and students alike. With a classroom project, students and teachers assume new roles they may consider as being unfamiliar and thus uncomfortable. Therefore, Grant (2002, p.3) suggests using a clear introduction at the beginning of the project ‘to set the stage’ and slowly introduce the concept of projects to the students. Such an introduction should include the aim, stages, tasks, supporting resources, and end of the project or intervention.

Authenticity of the project design is the second feature that is necessary for an effective GDMC educational intervention. An effective educational project should be authentic (i.e., relatable) in regards to aspects of real life. Larmer et al. (2015) state that students’ motivation is enhanced through authenticity and that there are several methods a project may utilise to be authentic. Projects can increase students’ engagement and enjoyment by utilising authentic content and technological artefacts in the gamified activity. Barab et al. (2007) state that ‘games allow for the *embedding of authentic resources and tools* that are critical to success’ (p. 752). Krajcik and Shin (2014) argue that project authenticity is increased in cases in which students are required to present an abstract idea (e.g., a solution to a problem) or a tangible product to a real audience upon the project’s completion. A project can additionally possess personal authenticity in cases wherein it relates to individual students’ personal ‘concerns, interests, cultures, identities, and issues in their lives’ (Larmer et al., 2015, p. 3).

An effective educational project should offer scaffolds and resources to support students' efforts to accomplish the project. Scaffolding the project means providing the necessary resources to support students, such as tools, information resources, access to experts, and supervision. The allowance of enough time for the completion of tasks is also a key resource. However, Darling-Hammond et al. (2008) argue that setting deadlines to finish a project's tasks may motivate students. Therefore, a suitable time frame for each task or activity's completion should be established. Having an abundance of resources available to students is 'key as it keeps the focus on learning concepts and encourages students to connect these concepts with their design work' (Darling-Hammond et al., 2008, p. 215). In their extensive literature review on project-based learning, Condliffe et al. (2017) note that there exists broad agreement that the scaffold in an educational project must possess certain characteristics: the scaffolding should be tailored to learners' needs and abilities, use technological artefacts, and fade over time. The project/intervention designer must tailor the scaffold according to students' current abilities and/or knowledge such that the scaffold provides neither too much nor too little support. In other words, students should perceive activities within the intervention as challenging yet achievable with the help of the right resources. Another key characteristic of scaffolding is the use of technology, as technological artefacts have the ability to support educational projects when implemented appropriately (Blumenfeld et al., 2000, 1991; ChanLin, 2008; Ravitz and Blazevski, 2014). The term 'technologies' here is used as an umbrella term for various types of tools; although, when researchers (cited above) refer to technology, they are referring to digital technological artefacts, which include mobile and computer applications, Web 2.0 tools (e.g., social media sites, digital content sharing sites, learning management systems [LMSs], blogs, and wikis), and extend to new, innovative tools, such as those that utilise augmented reality. However, it is imperative for intervention designers to consider the

availability of any technological artefacts before including them in an intervention's design. The final characteristic of the scaffold in educational projects is that it should fade and disappear over time to allow students to apply their acquired skills and knowledge in the real world without assistance (Puntambekar and Hubscher, 2005). McNeill et al. (2006) conducted an empirical study to investigate the effects of scaffolding on more than 300 students and concluded that students performed well even after support was withdrawn because, in the study, the scaffold faded over time. Activities in the proposed GDMC framework possess two components that are designed and aligned with the concept of scaffolding. The purpose of game design elements in GDMCs is to support the process of learning an L2 by raising students' motivation. Therefore, the use of game design elements should fade away in the GDMC intervention. Although it has been suggested that fading is a key element of scaffolding in educational projects (Larmer et al., 2015), teachers need additional research to help them scaffold the learning process effectively and instruct them how to how to fade the support and when (Condliffe et al., 2017, p. 29).

Implementing educational interventions is not the norm in many L2 classrooms. Therefore, conducting educational interventions calls for new roles for teachers and students. In Section 2.3.2, openness to the DMC experience was presented as being a condition for a group DMC. This concept extends to doing an educational intervention because both teachers and students must participate in the learning project willingly, which thus constitutes a shift in the roles of both teachers and students. This shift is necessary, as teachers' beliefs have strong effects on their practices; such beliefs include the willingness to adopt new methods or integrate new tools (Fang, 1996). For example, Ertmer (2005) investigates teachers' pedagogical beliefs concerning technology

integration and describes these beliefs as a barrier to effective integration. Before discussing specific issues relevant to teachers' beliefs in doing educational interventions, it is important to highlight the difference between teachers' beliefs and teachers' knowledge. According to Condliffe et al. (2017, p. 23), 'Teachers' knowledge relies on factual propositions and understandings, whereas teachers' beliefs are ideologies and suppositions.' In other words, teachers may be aware of the specifics of a new pedagogical method or innovative tool, such as technological artefacts, but its positive application is highly influenced by teachers' beliefs regarding the efficiency of those methods or tools. Teachers must be open to the concept of educational interventions, as teachers at times resist the notion of interventions for many reasons. Doing an intervention project in the classroom can be time consuming and thus frustrating for teachers (K. D. Simons et al., 2004). Moreover, interventions can increase teachers' workloads. In this regard, Blumenfeld et al. (1991, p. 371) suggest that 'teachers should scaffold instruction by breaking down tasks; use prompting, and coaching to teach strategies for thinking and problem solving; and gradually release responsibility to the learner.' The effective application of student-centred learning, such as projects, necessitates skills and resources that are different from those required for the more conventional, teacher-centred strategies (Brush and Saye, 2000). Grant and Hill (2006, p. 22) describe five factors that impact teachers' decisions while implementing an educational project: (1) recognition and acceptance of new roles and responsibilities; (2) comfort level in the new physical environment; (3) tolerance for ambiguity and flexibility in managing the new learning environment; (4) confidence in integrating technology into the new learning environment; and (5) integration of the new pedagogy with realities beyond the classroom, which involves addressing the needs of all stakeholders, including individual students, administrators, and the educational institution, to name a few. When

implementing a classroom intervention project that focuses on student-centred strategies, a teacher's ability to shift their role from being the source of knowledge to being a facilitator is a key implementation obstacle they must overcome (Ertmer and Simons, 2006).

In a classroom intervention, students must also assume new roles. In many classrooms, the norm is a passive learning experience wherein knowledge is transferred from the teacher—who is an authoritative figure in this case—to novice students with strict instructions concerning what should be done with this information. In contrast, in a classroom intervention project, the students take responsibility and control of the learning process. They are organised into groups, work collaboratively (Grant, 2002), and have the authority to describe and address problems (Darling-Hammond et al., 2008). As mentioned earlier, conducting classroom intervention projects may be a new and different learning experience for many teachers and students and, thus, teachers must provide feedback and opportunities for students' reflection. Students should be provided with opportunities to reflect on the learning process to understand the educational value that the intervention hold. Larmer et al. (2015, p. 3) assert that 'throughout a project, students—and the teacher—should reflect on what they're learning, how they're learning, and why they're learning.' Feedback has also been promoted as an integral part of supporting students during the classroom intervention project. Darling-Hammond et al. (2008, p. 216) state that a project should allow feedback and time for 'students to reflect deeply on the work they are doing and how it relates to larger concepts specified in the learning goal, including deep questioning about process and understanding.' The GDMC design includes a number of activities that should be completed in order to reach the GDMC goal. Feedback and the opportunity to reflect should be built into the

intervention's design following each activity. This would make feedback from the teacher and reflection from the students an ongoing process throughout the intervention's duration.

The final feature that is relevant to the construction of the GDMC intervention is linking activities in the intervention to form a narrative. This feature does not originate from the literature of educational projects, but rather from the field of gamification. To conduct a classroom intervention that utilises a group GDMC, which is conceptualised as a gameful experience, I argue that having a story should help make the intervention project (i.e., the classroom contest) feel like a directed experience with a clear beginning and end through linking activities into one cohesive narrative. Furthermore, in an educational context, connecting game design elements through a narrative engages students (Kapp, 2012) and should help the intervention designer shape its structure.

The narrative or story element is emphasised in the gamification literature. For example, Ibrahim et al. (2010) state that there are four essential game features that must be present in any system in order for the system to be considered a game regardless of that system's original goal. These features are challenges, goals, feedback, and game story. Based on this argument, a game must include all four features, and, because gamification principles are derived from the concept of games, a system may be considered gamified if it contains at least one of these game features (Apostol et al., 2013). Aldemir et al. (2018) conducted an empirical study to examine students' perceptions of game features in a gamified context. The result indicated that learners view narratives positively, and thus the researchers concluded that a gamified learning environment should include a story. Aldemir et al. (2018, p. 248) explain that 'the narrative is a dynamic element in a game

environment, as it is quite helpful in combining different game elements in a coherent way to present a meaningful ongoing story or context for the players.’ Taking this into account, I argue that integrating a narrative throughout an educational intervention can link the various components of a GDMC, such as gamification and the linguistic components present in an activity. Furthermore, a single, cohesive narrative that links all activities in the intervention can help draw the students a clear path from the triggers at the start of the GDMC intervention to the goal/vision at the end of the current.

In summary, if implemented correctly, an educational intervention can energise the learning process in many ways. The classroom intervention functions as a clear, applicable plan that demonstrates to students how the gamified activities in the GDMC-based contest lead to the goal of learning an L2 by linking those activities together. Such a plan enables the students to focus on the goal of learning an L2 and thus minimises distractions that may occur as a result of implementing new learning approaches (e.g., gamification). Moreover, educational interventions have the ability to create a shared vision, as the students want to accomplish the project as a group and thus avoid failure (Dörnyei et al., 2015b).

Based on the discussion above and other literature on educational interventions/projects, Dörnyei et al. (2015b, p. 144) argue that in an L2 classroom, group DMC is best manifested as an ‘intensive group project.’ Thus, the authors suggest seven frameworks for focused interventions to function as guidelines for designing an educational intervention to initiate and sustain group DMCs, specifically in an L2 classroom. They argue that these seven frameworks represent different versions that include key components of a group DMC and practitioners should use them to focus a DMC-based

intervention's application, aim and procedures (see Table 3). Dörnyei et al. (2015b, p. 176) state that 'a complete "project template" [i.e., the seven frameworks for focused interventions] will encompass all of the key components of DMC construct.' Along the same lines, the classroom contest framework in the current study is considered a GDMC-based focused intervention. Therefore, before presenting the classroom contest framework, I present a brief review of the seven frameworks (Dörnyei et al., 2015b; Muir, 2016).

Table 3 Seven frameworks for focused interventions (reproduced from Dörnyei et al., 2015b, p. 177)

Framework	Signature component
All Eyes on the Final Product	An end-goal and accompanying vision which energises the entire project
Step by Step	The energising power of a contingent path
The BIG Issue	A driving question which provokes reactions and energises behaviour
That's Me!	A strong sense of 'connectedness' both between students themselves and between the learner group and the project
Detective Work	An intriguing problem, the solution of which sustains extended periods of concentration and motivated action
Story Sequels	An engaging temporal axis fixed around an unfolding longitudinal structure
Study Abroad	A distal goal which generates initial motivational momentum, subsequently supported by a systematic structure of subgoals

The All Eyes on the Final Product version is, arguably, the most commonly used framework in educational settings. In this variant, students are usually tasked with generating a product through a specific set of steps. This product might be an essay, a video, a portfolio, a presentation, or a poster, to name a few options. These products could be assigned to students with either educational, informative or entertainment purposes in mind. The primary source of motivation in this framework is a vivid visualisation of the

final product that the students want to realise. However, the existence of such a strong vision will often minimise the role of the proximal subgoals that must be accomplished to produce the final product. A Step by Step framework is a project that has a well-defined path and consists of several steps or stages and participants receive rewards and/or awards at the completion of each stage. Dörnyei et al. (2015b) argue that the Step by Step framework's ability to provide motivational energy to all steps in the project lies in the contingent path underlying its structure. The contingent path theory (Raynor and Entin, 1983) rests on the notion that when a series of tasks are connected to form one cohesive project and where the completion of one task is a necessary condition to undertake the next, motivational momentum is created as participants seek to progressively accomplish tasks and finish the project. The BIG Issue framework is constructed around a driving question which aims to trigger the learners' interests and challenges them to generate thoughtful answers. The motivational power in this framework comes from constructing the driving question around a topic that is highly relatable to the students and thus takes their 'involvement with L2 content past a superficial level of engagement' (Muir, 2016, p. 107). The That's Me! framework is based on highlighting the concepts of authenticity and expressiveness. Motivation is created through relating an authentic project topic to the individual learner's core identity as 'students are more likely to be engaged in their learning if they see a connection to their own world' (New York City Department of Education, 2009, p. 13). The Detective Work project is based on the concept of the well-known problem-based learning. In this variant, the project puts forward an authentic and complex problem that the learners might face in real life, and motivation emerges from 'arousing the "hunter's instinct" in us' (the students) to solve the puzzle or the problem (Dörnyei et al., 2015b, p. 190). The Story Sequels project framework involves creating a progressively unfolding longitudinal narrative. Such structure unfolds over time, which

triggers students' curiosity to follow the storyline and thus engage with their L2. As the name suggests, the Study Abroad framework is built on considering periods of studying abroad at an L2 native country as a project. Motivational energy in this case is generated over two phases: preparation for the trip, and the following actual stay in the L2 country. These two phases require continuance engagement with L2 if the learner wants to her or his study abroad project to be successful.

2.6 Justifying the current study

The rationale for this study involved the need to identify a practical framework with which to utilise the latest motivation theory to motivate L2 learners. Gamification has an apparent and immediate effect in real-world classrooms but lacks an underpinning theoretical base. Accordingly, in the current study, I argued that gamification can serve as an appropriate internal structure to initiate and sustain group DMCs, which, as a new motivational construct, must be grounded in the context of real-life L2 classrooms. This study examined the introduction of gaming design elements based on Nicholson's (2015) explanation of meaningful gamification as a practical framework to implement DMC theory and thus create a motivational current in an taught L2 classroom environment. My goal was to examine and analyse the process of introducing game design elements moment by moment in an attempt to identify classroom interactions, effects on motivation, and motivational current characteristics all within the system of DMCs. To do so, I designed and implemented a classroom intervention plan based on the GDMC model. The GDMC intervention was presented to the students as a classroom contest that ties all the motivational components of the GDMC intervention in one coherent programme (discussed in Section 3.5). This study adds to the scarce empirical literature on DMCs in such a way as to help identify the theory's benefits, shape, and characteristics

when implemented in an L2 classroom; this is especially significant both when the theory of DMCs is coupled with gamification design elements as an established practical framework and in the specific context of an L2 classroom. This study has the potential to be generalised across settings for two reasons: the underpinning theory (DMC theory) is built on a universal human phenomenon that transcends context, and the framework is explicitly designed with practical applications in mind, as represented in the gamification design elements. To investigate the research topic, I presented the following research questions (RQs):

- RQ1) How do students' L2 motivation levels fluctuate during the application of the GDMC intervention?
- RQ2) How do students describe their motivation relative to their learning experiences during the application of the GDMC intervention?
- RQ3) What is the construct (i.e., components, conditions, and triggers) of the motivational currents created by GDMCs?

Finding how students' L2 motivation levels fluctuate over time enabled me to (a) examine the effectiveness of the GDMC intervention in raising students' L2 motivation; and (b) determine the overall shape of the motivational current created by the intervention. I employed quantitative methods (questionnaires and motivation-tracking graphs) to answer RQ1. By employing qualitative methods (focus group interviews) to answer RQ2 and RQ3, I aimed to gain a deep understanding of the GDMC intervention implementation process and impact on motivation from the students' perspective as well as the characteristics (i.e., components, conditions, and triggers) of the motivational current created by GDMCs. The next chapter moves on to present and discuss the research methodology I followed to answer the research questions.

Chapter 3 Methodology

3.1 Introduction

The methodology chapter outlines the study's overall approach to investigating the proposed research questions. First, I restate the study's aims and discuss my rationale for adopting a mixed-methods research approach, discussing and explaining the interventionist design of the present study. Then, in the following sections, I provide an overview of the study's context and participants and focus on ethical considerations. Since the study uses an educational intervention, the next section presents and discusses the intervention's design and procedures, including the classroom context framework, first to demonstrate which elements from both directed motivational current (DMC) theory and gamification are employed within the intervention and, second, to explain my rationale for choosing these particular elements. I then present and discuss the instruments employed to evaluate the effects of the gamified directed motivational current (GDMC)-based intervention as well as the actual data-collection procedures used for this study. Validity and reliability are also discussed to show research trustworthiness. Next, I introduce a detailed description of the collected data and the process by which the data were prepared for analysis. Finally, I end the chapter with a brief discussion of my initial findings before moving to a more comprehensive analysis and findings in Chapters 4 and 5.

3.2 Mixed-methods research approach

This study argues that the proposed GDMC framework, which is built on the understanding that DMC theory can benefit from game design, may initiate and sustain a group motivational current in an L2 classroom. Based on this argument, the study aims to investigate the effectiveness of using a GDMC to raise L2 motivation in an L2 classroom and examine any beneficial and/or harmful outcomes. To examine the application of GDMCs, I implemented a classroom intervention plan based on the GDMC framework. A secondary aim is to evaluate GDMCs, which may identify key motivational elements that future research should focus on to integrate gamification and motivation theory.

For this study, a mixed-methods approach was used, which is consistent with the recent trend in L2 motivation research away from the traditional quantitative approach. Gardner and Lambert's (1959) article marked the birth of L2 motivation research (Al-Hoorie, 2017), and, since its early years, L2 motivation research has been dominated by cross-sectional, quantitative studies that use measuring instruments 'designed and worded to assess aspects of motivation which are to some extent measurable or quantifiable' (e.g., questionnaires and test batteries) to find linear cause–effect relationships (Ushioda, 1994, p. 78). Ryan and Dörnyei (2013, p. 90) explain that 'earlier models of motivation looked at the relationship between the individual and context as a linear, causal process; in essence [former researchers] were concerned with the unidirectional effects of context on individual behaviour.' However, the long-established quantitative approach dominating the field of L2 motivation has shifted (Dörnyei and Ushioda, 2013). For example, in their article, Boo et al. (2015) reviewed journal articles and book chapters published between

2005 and 2014 (N = 416) to investigate the origins and nature of what they describe as an extraordinary rise in the number of L2 motivation studies. The authors state, ‘Of the 335 empirical papers in our dataset, 178 were grounded in quantitative research methods, 71 were qualitative studies, 73 employed mixed methodologies, and 13 utilised innovative methods’ (p. 151). Thus, Boo et al. (2015) conclude that the quantitative approach to L2 motivation research no longer dominates the field, as researchers increasingly endorse qualitative or mixed-methods approaches. The reason for this shift is that the traditional quantitative approaches do not lend themselves to the investigation of essential aspects of motivation, including its complex, dynamic nature, how it fluctuates over time and interactions between the learner and the surrounding context—although quantitative approaches are not without value. On the contrary, they provide invaluable information for identifying variables that affect motivation in particular contexts (Ryan and Dörnyei, 2013) rather than the interactions between individuals and those variables. Quantitative approaches also help gauge the presence and type of motivation through self-reporting measures (e.g., Noels et al.’s [2000] language learning orientations scale). Moreover, these approaches aid in detecting motivation patterns and relationships across a large dataset (Dörnyei and Ushioda, 2013). Since this study aims to investigate aspects of L2 motivation that require quantitative and qualitative methods, as reflected in the research questions, it employs a mixed-methods approach.

In the present study, throughout the intervention I employ three data-collection instruments: self-plotted graphs to *track* changes in students’ motivation, a questionnaire to *assess* students’ motivation levels, and focus group interviews to *investigate* how the GDMC intervention affects students’ learning experiences. Quantitative methods allow me to examine how motivation fluctuates over the course of the intervention, which in

turn aids in detecting the overall shape of the motivational current, which addresses RQ1. This examination takes place by administering a questionnaire that includes Likert-scale items to assess students' L2 motivations and motivation-tracking graphs to track any changes on multiple occasions during the intervention (the details of the data-collection instruments are discussed in Section 3.7). Regularly assessing students' motivation levels during the intervention also enables me to trace how students' motivations increase or decrease from one intervention session to the next and during the intervention overall. This regular assessment facilitates the identification of motivation fluctuation and, consequently, the deduction of the entire motivational current's shape as created by the GDMC intervention.

However, Hickey (1997, p. 182) argues that 'the use of self-report measures, particularly Likert-style scales . . . don't capture the full range of responses, making different contexts appear more similar than they really are.' Therefore, to capture the dynamic interaction between the students and the game design elements in the study, qualitative methods are required due to their ability 'to investigate qualitative aspects of L2 motivation as reflected in students' thought processes' (Ushioda, 1994, p. 76). According to Ushioda (2013), self-reporting questionnaires with Likert-scale items and interviews are predominantly used to both measure L2 motivation and establish the relationship between motivational elements and students' motivation levels—that is, the relationship between motivational elements in GDMCs and levels of student motivation. Ushioda (2001) recognises the value of qualitative or interpretative approaches and argues that they are appropriate for investigating motivation as a context-dependent, multifaceted, dynamic phenomenon. Therefore, to gain insights into motivated students' thoughts, I conducted focus group interviews with volunteer participants during the intervention to help answer

RQ2 and RQ3. The purpose of a quantitative approach is to examine how student motivation ebbs and flows during the intervention to then identify the shape of the motivational current and establish whether or not they generally experience the motivational surge described in DMC theory. In contrast, the qualitative approach is meant to uncover dynamic interactions between the students and motivational elements in the students' own interpretations of their learning experiences and identify the GDMC characteristics.

This discussion demonstrates that the various aspects of L2 motivation require different research methods. Therefore, I subsequently discuss how qualitative and quantitative methods can be combined. Creswell et al. (2011) identifies five reasons for mixing methods: (1) triangulation, which seeks to verify findings from different methods; (2) complementation, which uses results generated by one method to clarify the results of another; (3) development, which uses data generated by one method to inform or develop another method; (4) initiation, which seeks to discover paradoxes that employ findings from different methods to explain a contradiction; and (5) expansion, which seeks to widen the range of inquiry to examine several aspects of a single phenomenon. In the current study, a mixed-methods approach enabled me to expand my scope of inquiry to examine different facets of a complex phenomenon; that is, L2 motivation. The concept of development is also utilised, as the results of the quantitative method (the motivation-tracking graphs) will guide questions that arise alongside the qualitative method (the focus group interviews); e.g., the motivation-tracking graphs were designed to reveal whether motivational elements within the intervention affected student motivation, while the focus group interviews investigated which elements were effective and to what degree. I also employed triangulation to increase the study's validity and reliability, such

as whether high levels of motivation are visible in both the quantitative and qualitative data.

3.3 The study's context and participants

The study context was the foundation year at Umm Al-Qura University (UQU) in Saudi Arabia. UQU's academic semester spans more than three months, and students are usually busy preparing for their final exams during the third month of the semester. Due to this contextual constraint, the study was conducted as an eight-week intervention.

Fraenkel et al. (2011) believe the unit of observation in education studies should be a single group rather than a single individual. Since the intervention was applied in an authentic learning environment, it used cluster random sampling, which refers to 'the selection of groups (e.g., intact L2 classes)' and is implemented in contexts where total randomisation of individuals is not possible (Mackey and Gass, 2005, p. 120). In cluster random sampling, the unit of observation is an intact language class chosen randomly from the population of intact language classes, which is the opposite procedure for a random sampling of individual students. Adopting an educational design that involves intact, non-equivalent class groups, where a random sampling of individuals is not feasible or practical, is now a recognised, accepted research methodology and is the most common method in educational research (Dörnyei, 2007). I aimed to recruit three intact general English language classes from UQU's foundation year (in the present study, a 'class' refers to a group of students studying a particular subject through attending a series of lectures for at least one academic semester, such as English 101). Each class had between 20 and 25 students, and recruiting comparable classes was feasible because they were homogenous; all students were 18- to 19-year-old males who originated from Saudi

Arabia, spoke Arabic as their first language, and were grouped into classes according to their English-language levels. Different religious, cultural, and social factors had led to gender segregation in the Saudi educational system which includes universities (Baki, 2004). For this reason, recruiting classes that includes both male and female students was not possible in the study's context. To minimise the effect of students' English levels on the study results, I recruited three classes with similar English levels, which was possible because a verbal agreement was made with UQU's administration that, in the event that some students did not wish to participate, they could transfer to another class. Furthermore, if some students wished to participate in the study but were in a class where most students declined to participate, they could have transferred to a class where the study was conducted. The intervention began at the beginning of the semester, so transferring students did not disrupt their academic progress. No student transferred from their class during the recruiting process.

3.4 Ethical considerations

This study complies with the *Ethical Guidelines for Educational Research* (2018) published by the British Educational Research Association (BERA) and bore minimal risk.² I addressed all the necessary ethical issues, such as ensuring that the participants were protected from risk and harm, obtaining informed consents and guaranteeing confidentiality and anonymity.

²For further information see: <https://www.bera.ac.uk/publication/ethical-guidelines-for-educational-research-2018-online>.

Prior to starting the intervention and data collection, this study was granted approval from King's College London Research Ethics Committee (see Appendix A) and the approval of the administration of UQU, the university where I conducted the study and recruited the participants (see Appendix B).

Mackey and Gass (2005, p. 27) note that informed consent can only be guaranteed if '(1) sufficient information is supplied[,] (2) subjects understand their role in the research [and] (3) participation is fully voluntary.' At the beginning of the semester in which the study was to take place, I met with the potential participants (several intact L2 classes) to give an oral presentation introducing the study, as is widely recommended (Mackey and Gass, 2005). During my presentations, I explained in Arabic all the study's details, fully disclosing all information regarding the study's aim, duration and procedures. I assured the students that they were not required to provide information that may reveal their identity in any way, that their identities would be kept anonymous and that only pseudonyms would be used in the data analysis. It was made clear that participation was voluntary, that they had the right to refuse to answer any question and that they could withdraw from the study at any time without having to give a reason until 1 October 2019, after which date withdrawal was not feasible as the data would have been anonymised and committed to the thesis. Each student who agreed to participate received a copy of the study's information sheet (see Appendix C) and signed a study consent form (see Appendix D), which included all the information I explained in my presentation.

Finally, all electronic data were securely stored on my personal laptop's hard drive, which is password protected. All physical data (hard copy paper) should have been stored in my personal university locker, but due to the coronavirus (COVID-19) pandemic, access to

my university locker was not possible. Therefore, all these paper copies were stored in a securely locked drawer in my house. In all cases, I was the only person with access to any data collected in the current study.

3.5 Research design: educational intervention

This section starts by presenting and discussing educational interventions and subsequently provides a detailed description of this study's research design. As discussed in Chapter 2, the present study emerged from the assumption that the suggested GDMC framework could initiate and sustain a group DMC in an L2 classroom. In theory, the DMC consists of several proximal goals, each of which is a small task with its own goal. Accomplishing these proximal goals forms a clear, well-structured route to a desired goal/vision and is triggered by a stimulus that can spark one's interest and thus initiate a DMC. In reality, the DMC construct translates to an intensive intervention with a starting point triggered by an extrinsic reward or internal interest, a goal aimed towards achievement and a clear structure (i.e., a plan). Accordingly, proponents of DMC theory argue that, by isolating the main conditions and elements that constitute a DMC, they can be used as components of a practical framework for effective classroom motivational interventions that enhance student motivation and promote learning (Dörnyei et al., 2015b). Dörnyei et al. (2015b) suggests that such a motivational intervention should be designed and incorporated into the learning experience because they often have four features that enable them to function as a practical framework for initiating DMCs in a classroom setting. First, an intervention has a clear structure that comprises a starting point, an end goal and a clear plan that establishes steps for accomplishing the intervention's goal; this structure aligns with the DMC's structure, as explained by Dörnyei et al. (2014). The second feature is the collaborative nature of educational

interventions, which often require that students work together and consequently create a shared vision that motivates them to accomplish a shared goal as a group and avoid failure (Dörnyei et al., 2015b). The third feature is a clear structure that details how accomplishing a set of predetermined steps (i.e., proximal goals) established by the intervention designer (i.e., the teacher or curriculum designer) achieves the end goal. In a DMC, this clear plan structures proximal goals (which are components of DMC theory) by linking and giving them context. Without a structured plan, students may not understand how accomplishing proximal goals achieves the goal/vision of the entire DMC. The fourth feature is that, like DMCs, educational interventions are authentic (i.e., they relate topics and activities in the intervention to aspects of real life) and often require students to present an abstract idea (e.g., a solution to a problem) or a tangible product to a real audience upon the intervention's completion. Thus, an educational intervention is a suitable, practical framework for initiating DMCs in a classroom setting. Therefore, to explore the research questions, I designed an educational intervention based on the proposed GDMC framework that investigated its effects on L2 motivation and students' perspectives regarding their experiences (Figure 3).

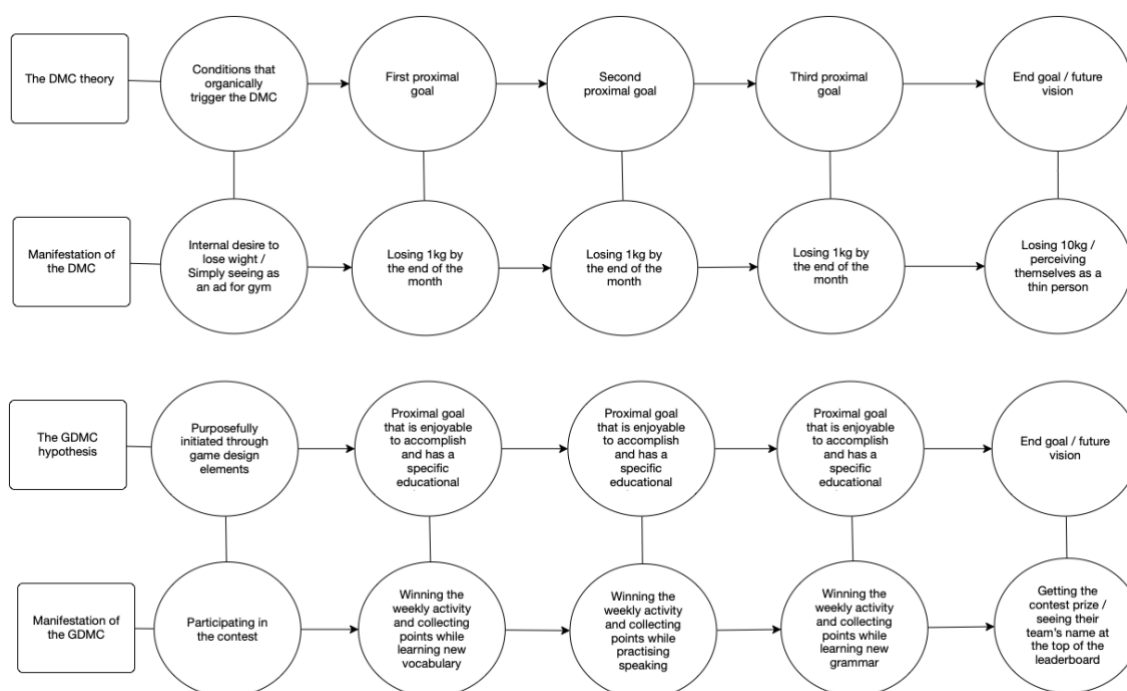


Figure 3 Manifestation of the theoretical and practical aspects of DMCs as a GDMC-based intervention

An intervention is a programme or a fixed set of steps specifically designed to help students improve in a particular area of need. Interventions are typically tracked to examine their impacts on addressing the targeted needs, and educators use such programmes to intervene in students' regular learning and provide support that targets a predefined area of need without disturbing other areas where students are perceived to be doing well. The term 'area of need' may include different aspects of the educational process, such as academic achievement, behavioural changes and psychological needs. In my study, the proposed GDMC intervention employs motivational elements from DMC theory and the concept of gamification to raise students' L2 motivation.

Classroom interventions are often confused with teaching strategies (Lee, 2017), so it is important to differentiate between them. A teaching strategy comprises a set of methods or activities used in a classroom to explain a certain concept, teach the students a new

skill, promote the use of an existing skill or deliver a certain type of information. The main difference between classroom interventions and teaching strategies is that an intervention plan is tailored to address a predetermined area of need and its impact is always monitored. In contrast, a teaching strategy generally does not target a specific weakness (although it may) and is not always tracked. Hence, an intervention may include a teaching strategy, but not all strategies can be considered interventions.

The following part of this section describes the research design in detail. Pressley et al. (2006) state:

Many educational interventions are tested in *true experiments*, in which students, classrooms or schools are randomly assigned to receive either an intervention or not. Such experimentation has been considered an ideal model for establishing whether an educational intervention causes particular educational outcomes. (emphasis added, p. 4)

Cohen et al. (2017) argue that a true experiment must possess certain features, such as one or more control and experimental groups, random sampling from a population, and pre-tests and post-tests that examine the effects of different aspects and non-contamination between groups, among others. These measurements are typically only present under laboratory conditions, so their existence is often unattainable in educational research. In real-world L2 classrooms (such as this study's context), preventing the interference of various variables is usually difficult. While the ability to control all study variables may be desirable, it is unrealistic in a natural setting, so researchers often depend on contexts and resources that already exist (Gass, 2015); e.g., total random sampling—selecting individual participants from the general population that the sample aims to represent—is normally infeasible in most educational settings. Moreover, because the

intervention in my study is based on the GDMC framework (and DMC theory by extension), which acknowledges the temporal aspect of motivation (i.e., motivation is not static but fluctuates over time), a pre-test–post-test design is inadequate for capturing this fluctuation. For example, in their study, Nitta and Asano (2010) administered a motivation assessment questionnaire twice, once at the beginning and once at the end of an English language course, in order to identify changes in students' motivation between the start and the end of the course. However, they state:

While such an approach reveals whether L2 learners' motivation changed, it is not possible to understand how their motivation developed over the period, which is crucial for understanding their executive motivation. This is because the two-wave research design assumes linear development, which is often not the case with L2 motivation. (p. 40–41)

The authors recognise that, although 'two-wave' (i.e., pre-test–post-test) designs have commonly been used to research changes in motivation, they can only identify the difference in motivation between two points in time and do not explore how motivation changes overtime (ibid). Thus, a non-linear change requires a 'multiwave' (i.e., multiple point of data collected) dynamic systems approach (e.g., Larsen-Freeman and Cameron, 2008) to investigate the dynamic nature of motivation (Nitta and Asano, 2010, p. 41).

The native characteristics of educational interventions, such as group work, often positively affect student motivation (Dörnyei et al., 2015b), so to address all the elements that may affect student motivation, I employed a three-group design of three experimental levels: treatment level 1, treatment level 2 and a control (Figure 4).

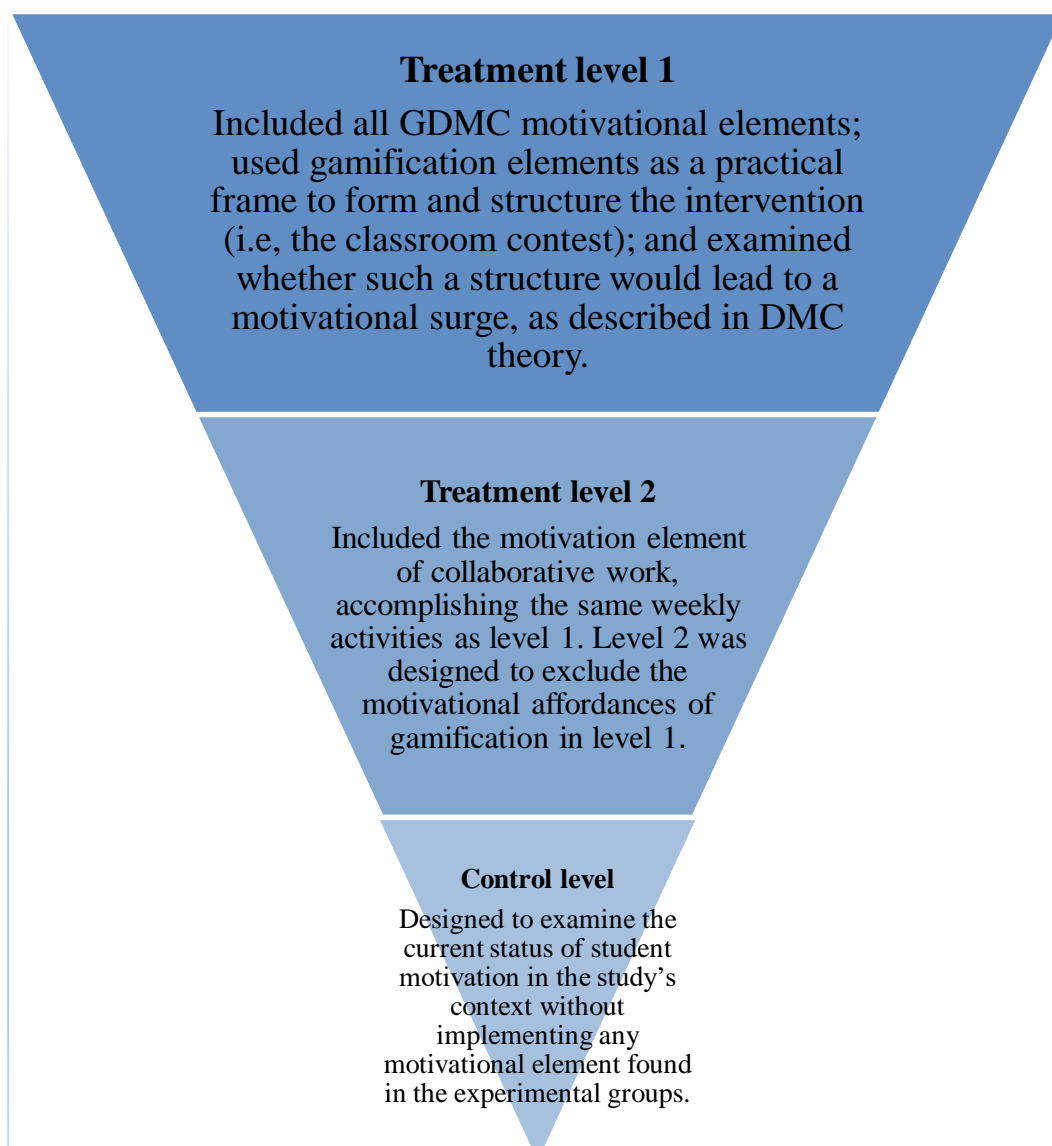


Figure 4 Illustration of the motivational aspects examined at each study level

The GDMC intervention was implemented on the first experimental level (treatment level 1). To differentiate between the effects of utilising the motivational affordances of educational interventions (e.g., collaborative work) and the motivational elements of GDMCs, students in the second level (treatment level 2) were exposed to the intervention activities (discussed below) but not the gamification elements (i.e., points, leaderboard, competition and contest). The third level (control) was the control group to which no treatment was applied. This was done to accurately assess the effects of the GDMC

intervention on student motivation and separate it from the motivational effects of merely participating in collaborative work.

Furthermore, to eliminate English language-level differences between classes, I approached five consecutive classes to minimise differences in students' language levels (G102, G103, G104, G105 and G106), explained the study and described the intervention and what would be required from them as participants (Table 4).

Table 4 Number of students who agreed to participate in the study

Classes	Number of students	Number of participants
G102	26	Unanimous agreement
G103	22	Unanimous agreement
G104	25	Unanimous agreement
G105	22	12
G106	27	Unanimous agreement

All students in these classes agreed to participate in the study except class G105, in which 10 students declined. Therefore, excluding class G105, a total of 100 students agreed to participate in the study. By this stage, each participant had received a copy of the study information sheet and signed a study consent form. Next, classes were randomly assigned to be either treatment or control groups (Table 5). At this point, I should address a minor but unavoidable ethical issue before discussing ethical considerations in Section 3.4. In order to obtain valid consent forms, all details of the intervention had to be explained to the students, including the fact that some classes would be assigned as control and would not participate in the intervention (i.e., the arguably fun classroom contest), which might be disappointing to some students. However, as discussed earlier, research design necessitates total randomness in assigning classes as either treatment or control groups. I am aware of the implications of this limitation, thus, to better this situation, all students

including control groups attended the celebratory open day at the end of the contest (see Table 7).

Table 5 Assigning sections as experimental or control

Treatment level	Class number
Treatment level 1	G104 and G106
Treatment level 2	G103
Control group	G102



The intervention involved a classroom contest spanning eight weeks. As part of the ethical considerations, it was important that the intervention did not interfere with the students' busy academic and personal lives. Therefore, to minimise any pressure that may result from participating in the study, the intervention was limited to one hour per week and did not require participant to do any extra work. Once a week, students in the treatment groups participated in an hour-long activity. Students in treatment level 2 performed each activity in groups that were randomly assembled each week, while students in the treatment level 1 groups were divided into teams of five students each and chose team names for themselves. Unlike students in treatment level 2, who worked with new group members each week, students in treatment level 1 worked with the same team members every week.

These activities were based on the current English curriculum at UQU. In the foundation year at UQU, all English-language curricula are from the New Headway English textbook series³ published by Oxford University Press. The textbook I present and discuss below

³ For further information, see elt.oup.com.

is an example of the other textbooks used in this study's context, as all textbooks in the New Headway in English series follow the same format. A New Headway in English textbook comprises 15 units, each of which has a central topic and aims to teach students language skills and knowledge. Unit objectives from the textbook are presented at the beginning of each unit as a seemingly unrelated list of items for the students to learn. Therefore, in the current intervention, each activity was intended to relate to the objectives of a textbook unit (see example in Table 6).

Table 6 Examples of textbook objectives at the beginning of each unit converted into an activity

Objectives of a unit in the textbook presented as a list at the beginning of each unit		Activity version
Unit 9 Food you like <ul style="list-style-type: none"> - Count and noncount nouns - Much/many - Food - Polite requests (New Headway Elementary, Student's Book, p. 66)		Make a presentation describing your favourite food or how to make an interesting dish. Be sure to include some count and noncount nouns and use much/many and polite requests. Your team will give a presentation using slides. Be creative and have fun. 😊
Unit 3 What a story <ul style="list-style-type: none"> - Use of narrative tenses - Giving news and responding - Showing interest (New Headway Upper-Intermediate, Student's Book, p. 26)		Write a story that involves a dialogue which includes all members of your team. The story should include narrative tenses and vocabulary related to giving news. Your team will enact the dialogue as a part of a class-wide contest. Be creative and have fun. 😊

After the activity, the team that performed the best according to the activity's rules was declared the week's winning team and awarded points. The teams were ranked on the contest's online leaderboard according to the number of points they collected. At the end

of the eight weeks, the team that collected the most points and was featured at the top of the leaderboard was considered the contest winner and was awarded the prize: choosing a charity to receive the funds that would be collected on a celebratory open fundraising day held at the university after the contest ended. Section 3.6 discusses the activities and prize in more detail below. Since there were two treatment level 1 classes (G104 and G106), two separate contests (interventions) were held. I also built two temporary websites to support the contests by showing the weekly activities and explaining each activity's goal and rules⁴ (see screenshots of the websites in Appendix E).

The websites also featured the leaderboards, making them accessible to the participants. They showed general information regarding the aim of the study and the contest and they provided contact information for the researcher and the study's supervisors. (This contact information was also provided in the study's information sheet.) Table 7 comprehensively describes the contest intervention procedures.

Table 7 Complete description of the contest intervention procedures

Week 1	
Activity	<p style="text-align: center;">Short story</p> <p>Work with your teammates and write a short story. Make sure to include the following elements.</p> <ol style="list-style-type: none"> 1. Use quantifiers, as in Lesson 5.1. 2. Use correct grammar. 3. All discussion must be in English. 4. Be creative! 😊 5. Have fun! <p>Each student must contribute. Use the writing tips you studied in Unit 4.</p>

⁴ G104: <https://xtj101.wixsite.com/tlo7005>.
G106: <https://xtj101.wixsite.com/website-1>.

<p>Motivational elements supported by DMC theory</p>	<ul style="list-style-type: none"> ● Goal: Winning the contest. ● Proximal goals: Completing the contest activity at the end of each unit. ● Vision: Seeing the team's name at the top of the leaderboard.
<p>Motivational elements supported by reward-based gamification</p>	<ul style="list-style-type: none"> ● Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. ● Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
<p>Motivational elements supported by non-reward-based gamification to increase intrinsic motivation</p>	<ul style="list-style-type: none"> ● Exposition: Creating stories for participants that are integrated with the real-world setting and allowing them to create their own. ● Choice: Developing systems that place the power in the hands of the participants.
<p>Data collection</p>	<ul style="list-style-type: none"> ● All students in all groups marked their motivation on a self-plotted graph. ● All students in all groups completed the students' motivation levels assessment questionnaire. ● Focus group discussion was conducted with volunteers from the treatment groups.
<p>Notes and impressions</p>	<p>When I explained the study and contest procedures to the students, they did not seem enthusiastic. It appears that they agreed to participate because it provided a much-needed change from their regular classes. However, the atmosphere changed dramatically once I asked them to choose names for their teams. There was a loud and heated discussion over choosing what they perceive as 'cool' name; mostly with references to popular culture. The students started to challenge each other by saying things like: 'You're going down,' and 'I advise you to give up. There is no chance you can beat us.' It seems that coming up with their own team names created a sense of identity and, thus, competition.</p> <p>During the contest, students had a lively discussion regarding how to write the story. They often discarded the rule of only using English and reverted to Arabic to communicate their viewpoints, which I recognised as a sign of over enthusiasm. However, whenever I passed by a group, while holding the clipboard containing the scoring rubric, the students quickly went back to using English. In some cases, the team members would apologise and ask me not to penalise them for speaking Arabic, attributing this to their over excitement.</p> <p>After the activity, the students immediately asked about the winners. After tallying the points and explaining the strengths and weaknesses of each team's story, I declared the winners. The winning team started to cheer, and the other teams said that they would win next week.</p> <p>In my opinion, the activity successfully created the intended atmosphere of playfulness. However, the activity's perceived</p>

	success in creating language learning motivation remained to be seen over the next few weeks.
Week 2	
Activity	<p style="text-align: center;">Notetaking</p> <p>In this activity, you will watch a short video. The video contains a lot of information. Your task is to take as many notes as possible, using the notetaking techniques you have learned in your English class. After you've watched the video, get together with your teammates; compare and combine your notes to write a cohesive summary of all the information in the video</p> <p>Use the notetaking skills you learned in Unit 5. Good luck! 😊</p>
Motivational elements supported by DMC theory	<ul style="list-style-type: none"> ● Goal: Winning the contest. ● Proximal goals: Completing the contest activity at the end of each unit. ● Vision: Seeing the team's name at the top of the leaderboard.
Motivational elements supported by reward-based gamification	<ul style="list-style-type: none"> ● Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. ● Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
Motivational elements supported by non-reward-based gamification to increase intrinsic motivation	<ul style="list-style-type: none"> ● Engagement: Encouraging the participants to discover and learn from others, who are interested in the real-world setting.
Data collection	<ul style="list-style-type: none"> ● All students in all groups marked their motivation on a self-plotted graph. ● Focus group discussion was conducted with volunteers from the treatment groups.
Notes and impressions	The students were excited to do the activity. Before it began, some students told members of last week's winning team that they would not win again this week. Most students asked me to play the video again so that they could complete their notetaking and cover all the information in the video.
Week 3	
Activity	<p style="text-align: center;">Asking questions</p> <p>This week, we will play 21 Questions. I will think of a person, job or an object. As teams, you will take turns asking 'Yes/No' questions to figure out the answer. You will have one chance to guess. If you guess wrong, you are out of the game. Make sure that the grammar of your question is correct; otherwise, I will not answer, and you will lose your turn. Have fun! 😊</p> <p>Use the grammar you learned in Unit 6 to ask 'Yes/No' questions. Good luck! 😊</p>

<p>Motivational elements supported by DMC theory</p>	<ul style="list-style-type: none"> • Goal: Winning the contest. • Proximal goals: Completing the contest activity at the end of each unit. • Vision: Seeing the team's name at the top of the leaderboard.
<p>Motivational elements supported by reward-based gamification</p>	<ul style="list-style-type: none"> • Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. • Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
<p>Motivational elements supported by non-reward-based gamification to increase intrinsic motivation</p>	<ul style="list-style-type: none"> • Play: Allowing participants the freedom to explore and fail within boundaries. • Information: Using game design and game display concepts to help participants learn more about the real-world context.
<p>Data collection</p>	<ul style="list-style-type: none"> • All students in all groups marked their motivation on a self-plotted graph. • Focus group discussion was conducted with volunteers from the treatment groups.
<p>Notes and impressions</p>	<p>Students seemed to be exceptionally excited during this activity. There was much cheering and laughter. Within their teams, they discussed how to construct grammatically correct questions to ensure that they did not miss their turns. Teams who guessed wrong seemed frustrated that they were out of the competition. Some asked for another chance, but the other teams did not allow it. After the activity ended, and although the class time had ended, they asked if they could do another round right away. In my view, this activity was exceptionally exciting for the students because it was designed like a well-known game, which they recognised. Playfulness seemed to have a major role in motivating the students to participate. Also, after the activity ended and the class was dismissed, I overheard some students in one of the teams discussing one of their questions, which was not grammatically correct and had made them lose one of their turns. One student opened the textbook and started explaining their mistake to the others. By Week 3, I began to see that the students' motivation was slowly, but steadily, rising. Whether this increase in motivation was part of a rising trend, as suggested by DMC theory, or whether it was particular to this activity remained to be seen in the following weeks.</p>
<p>Week 4</p>	
<p>Activity</p>	<p style="text-align: center;">Vocabulary bank</p> <p>This week we will play Last Man Standing. This game is designed to strengthen your vocabulary bank. You will stand with a ball. You must name a category from one of the units we have studied so far (1–6) and pass the ball to another student. Let that student toss the ball to another student while naming a word related to the theme. If they repeat a word or cannot think of any more words, they must sit down. Are you going to be the last man/student standing? 😊</p>

<p>Motivational elements supported by DMC theory</p>	<ul style="list-style-type: none"> ● Goal: Winning the contest. ● Proximal goals: Completing the contest activity at the end of each unit. ● Vision: Seeing the team's name at the top of the leaderboard.
<p>Motivational elements supported by reward-based gamification</p>	<ul style="list-style-type: none"> ● Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. ● Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
<p>Motivational elements supported by non-reward-based gamification to increase intrinsic motivation</p>	<ul style="list-style-type: none"> ● Play: Allowing participants the freedom to explore and fail within boundaries. ● Information: Using game design and game display concepts to help participants learn more about the real-world context.
<p>Data collection</p>	<ul style="list-style-type: none"> ● All students in all groups marked their motivation on a self-plotted graph. ● All students in all groups completed the students' motivation levels assessment questionnaire. ● Focus group discussion was conducted with volunteers from the treatment groups.
<p>Notes and impressions</p>	<p>Similarly to the previous week's activity, students seemed to be excited during this activity. Without being prompted to do so, many students compiled a short list of words that they thought were the most difficult to help them win the activity. It appeared that the students were becoming more competitive. Students who could not provide an answer and thus were out of the game kept asking for a second chance. I also noticed that, after being eliminated from the game, many students immediately opened their textbooks to review the vocabulary they missed. Students who were eliminated for missing words encouraged their teammates, who were still standing, with statements like: 'You can do it,' and 'Just calm down and think.' In general, much like the previous week's activity, this activity seemed to create the sought after gameful experience for the same reasons. When the activity ended and class was dismissed, some students came to me to ask about the use of some vocabulary and said that the activity showed them they must study harder as the exams drew closer.</p>
<p>Week 5</p>	
<p>Activity</p>	<p style="text-align: center;">Debate</p> <p>This week, we will have a classroom debate. A controversial topic will be presented. Your team will be assigned as <i>team for</i> or <i>team against</i>. You will have time to research the topic and construct your arguments. If you are unfamiliar with formal debate, speakers adhere to a set order. The following is the most basic of debate structures. First, the <i>for team</i> receives two minutes to present its case to the rest of the class. Then the <i>against team</i> receives two minutes to present its case.</p>

	<p>After both teams have a chance to speak, they will receive two minutes to prepare a rebuttal and summary. The order of speech is reversed now. The <i>against</i> side presents its rebuttal and summary for the first two minutes. Then, the last to speak is the <i>for team</i>, which presents its rebuttal and summary for two minutes. The debate is then concluded.</p> <p>You will be scored based on your grammar, your use of vocabulary and the strength of your arguments. Good luck! 😊</p>
Motivational elements supported by DMC theory	<ul style="list-style-type: none"> • Goal: Winning the contest. • Proximal goals: Completing the contest activity at the end of each unit. • Vision: Seeing the team's name at the top of the leaderboard.
Motivational elements supported by reward-based gamification	<ul style="list-style-type: none"> • Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. • Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
Motivational elements supported by non-reward-based gamification to increase intrinsic motivation	<ul style="list-style-type: none"> • Choice: Developing systems that place the power in the hands of the participants. • Engagement: Encouraging the participants to discover and learn from others, who are interested in the real-world setting.
Data collection	<ul style="list-style-type: none"> • All students in all groups marked their motivation on a self-plotted graph. • Focus group discussion was conducted with volunteers from the treatment groups.
Notes and impressions	<p>This activity created the most exciting atmosphere so far. The level of competitiveness was clearly higher than in previous weeks. Teams engaged in a heated discussion to construct their arguments and rebuttals. They were also careful to take notes during the debate so that they could respond properly. However, whether this increase in competitiveness resulted from the students' desire to collect points and win the contest or whether it was particular to this activity remains to be determined through data analysis.</p>
Week 6	
Activity	<p style="text-align: center;">Presentation</p> <p>This week you will choose a topic that interests you as a team and will give a 10-minute presentation on that topic. For this activity, you will have to prepare in advance. Each team member must present for two minutes. You will be assessed based on your use of correct grammar, your vocabulary and your presentation skills. The presentation must include at least eight slides. Timing is important, so make sure that you do not go under or over the 10 minutes. You will have 10 minutes to prepare before we start the presentations.</p> <p>Good luck! 😊</p>

<p>Motivational elements supported by DMC theory</p>	<ul style="list-style-type: none"> ● Goal: Winning the contest. ● Proximal goals: Completing the contest activity at the end of each unit. ● Vision: Seeing the team’s name at the top of the leaderboard.
<p>Motivational elements supported by reward-based gamification</p>	<ul style="list-style-type: none"> ● Points: The team that performs the best and wins the activity by following the rules will be named the week’s winner, earn points and climb the leaderboard. ● Leaderboard: An online board that features teams’ names, ordered by the number of points they have accumulated.
<p>Motivational elements supported by non-reward-based gamification to increase intrinsic motivation</p>	<ul style="list-style-type: none"> ● Choice: Developing systems that place the power in the hands of the participants. ● Reflection: Assisting participants in finding other interests and past experiences, which can deepen their engagement and learning.
<p>Data collection</p>	<ul style="list-style-type: none"> ● All students in all groups marked their motivation on a self-plotted graph. ● Focus group discussion was conducted with volunteers from the treatment groups.
<p>Notes and impressions</p>	<p>This activity did not generate much energy. The class atmosphere was calm and quiet. The teams were well prepared and delivered their presentations in a timely manner. Unlike previous weeks, I did not notice competitiveness or much talk about points or winning. After the class ended, a couple of students did ask who gave the best presentation and would be the winning team. I told them that the points would have to be tallied up first and that the winning team would be announced on the contest website. Whether this decrease in competitiveness and perceived excitement was the result of the students preparing in advance and the lack of in-class interaction between teams, or whether it stemmed from a general decrease in their interest in the activity or the whole contest, remained to be determined through data analysis.</p>
<p>Week 7</p>	
<p>Activity</p>	<p style="text-align: center;">Role-Play</p> <p>This week, each team will be given a short outline of a real-life situation, and team members must act out these scenarios—for example, buying goods from a shopkeeper; acting out a phone call between a customer and travel agent to book tickets; asking strangers for directions; etc. You will be assessed based on your use of correct grammar, your pronunciation and your fluency.</p> <p>Good luck! 😊</p>
<p>Motivational elements supported by DMC theory</p>	<ul style="list-style-type: none"> ● Goal: Winning the contest. ● Proximal goals: Completing the contest activity at the end of each unit. ● Vision: Seeing the team’s name at the top of the leaderboard.

<p>Motivational elements supported by reward-based gamification</p>	<ul style="list-style-type: none"> • Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. • Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
<p>Motivational elements supported by non-reward-based gamification to increase intrinsic motivation</p>	<ul style="list-style-type: none"> • Information: Using game design and game display concepts to help participants to learn more about the real-world context. • Exposition: Creating stories for participants that are integrated with the real-world setting and allowing them to create their own.
<p>Data collection</p>	<ul style="list-style-type: none"> • All students in all groups marked their motivation on a self-plotted graph. • No students volunteered to do a focus group discussion, stating that they were busy studying for the mid-term exams, which were due the following week.
<p>Notes and impressions</p>	<p>This activity seemed to be the most fun and enjoyable for the students, as they were cheering and laughing a lot during the role-play. It was also apparent that the students were enjoying the role-play activity, as they took creative liberties with the scenarios by expanding on them. The students made the scenarios funny by adding jokes and over-the-top acting. On many occasions, the students did try to speak in English, using the grammar they had learned in their regular classes. As in the previous week's activity, I did not notice competitiveness or much talking about points or winning. Whether this decrease in competitiveness and attention to winning was the result of the activity or of a general decrease in the students' interest in the contest remained to be determined through data analysis.</p>
<p>Week 8</p>	
<p>Activity</p>	<p style="text-align: center;">Quiz</p> <p>This week, we will play a quizzing game. This game is designed as a review of all the units you have studied so far. I will ask you questions relating to topics, grammar and vocabulary from the textbook. Each team will have a buzzer to press when you want to answer. Keep in mind that, if your answer is wrong, you will lose your turn and have to wait for the next question. You can discuss the answers with your teammates but ONLY in English. The team that answers the most questions will be the winner.</p> <p>So, study up! 😊</p>
<p>Motivational elements supported by DMC theory</p>	<ul style="list-style-type: none"> • Goal: Winning the contest. • Proximal goals: Completing the contest activity at the end of each unit. • Vision: Seeing the team's name at the top of the leaderboard.

<p>Motivational elements supported by reward-based gamification</p>	<ul style="list-style-type: none"> ● Points: The team that performs the best and wins the activity by following the rules will be named the week's winner, earn points and climb the leaderboard. ● Leaderboard: An online board that features teams' names, ordered by the number of points they have accumulated.
<p>Motivational elements supported by non-reward-based gamification to increase intrinsic motivation</p>	<ul style="list-style-type: none"> ● Play: Allowing participants the freedom to explore and fail within boundaries. ● Information: Using game design and game display concepts to help the participants learn more about the real-world context.
<p>Data collection</p>	<ul style="list-style-type: none"> ● All students in all groups marked their motivation on a self-plotted graph. ● All students in all groups completed the students' motivation levels assessment questionnaire. ● Focus group discussion was conducted with volunteers from the treatment groups.
<p>Notes and impressions</p>	<p>Students seemed to be excited while performing this activity. I casually asked if any of them prepared for the activity, and many said they had. However, they also pointed out that they had to start studying to prepare for the final exams anyway. The students were noticeably enjoying the activity, as there was a great deal of laughing and cheering. Nonetheless, continuing the trend of the past two weeks, I did not hear any remarks that indicated competitiveness or any talk regarding points or the leaderboard. At this point of the contest, two teams were tied for first place, meaning that, if one of them won this activity, that team would win the contest. By the end of the activity and class time, one of these teams had indeed won. Although, they cheered and clapped, no one talked about the contest. The students just left the classroom in seemingly high spirits. This gradual but noticeable lack of interest in winning the contest needs to be centrally considered during analysis of the focus group interviews.</p>
<p>End of the intervention</p>	
<p>After the contest ended, a fundraising activity was held at the university. The researcher and participating students brought various snacks for other students and staff. The winning teams were announced and celebrated, the fundraising activity was explained, and the students and staff continued the day playing pool and table tennis. The winning teams chose the Zmzm charity⁵ (a community-led charity delivering free healthcare in the city of Makkah) to receive the money collected from students and staff during the fundraising day. The collected funds have been delivered to the charity.</p>	

⁵ <https://www.zmzm.org/>.

3.6 Design rationale for the contest and the activities

Empirical research reveals that the DMC construct is experienced by individuals in various aspects of life, including language learning (Muir, 2016); however, scarce empirical evidence exists showing that the DMC construct can be initiated and sustained in language classrooms (Dörnyei et al., 2015b). The GDMC framework proposes that gamifying the DMC construct by applying game design elements to the proximal goals (i.e., winning weekly activities) makes them inherently enjoyable and may thus more easily support the initiating and sustaining of L2 motivation in the classroom. The current study's GDMC intervention aimed to raise students' motivation through employing concepts from both the DMC theory of motivation and the field of gamification. In the remainder of this section, I discuss the specific elements used in the intervention and the rationale for choosing them.

The elements of end goal/vision and proximal goals from DMC theory were manifested differently in the structure of the GDMC intervention (i.e., the classroom contest). DMC theory posits that when a person desires to achieve a long-term goal or realise a future vision of him/herself, he/she becomes motivated to accomplish small, fixed, routine tasks (labelled 'proximal sub-goals' by Muir and Dörnyei [2013]) that lead him/her to reach that goal/vision, thus creating a surge in his/her motivation levels that persist until that long-term goal/vision is achieved. Proponents of this theory argue that completing routine tasks becomes enjoyable because the individual is aware that they lead to his/her goal/vision, which creates high levels of motivation. It is safe to assume that foundation-year students in the medical stream, for example, possess future visions of themselves as healthcare professionals. These students also know that passing courses with good grades

leads them to realise such future visions. According to DMC theory, language learning should become enjoyable because it leads students to achieve their goals/visions; however, this is not the case in many contexts. The GDMC framework aims to raise students' motivation by shifting the focus from long-term personal goals (graduating, making money, etc.) and future visions (becoming a teacher, engineer, etc.) to a short-term goal (i.e., winning the classroom contest), so that this short-term goal becomes much more clearly defined, and achieving such a short-term goal affords students the motivational energy to progress from one proximal goal (i.e., activity) to the next, as posited by DMC theory. It should be noted that although the textbook used in this intervention has a review section at the end of each unit that lists its objectives, this section was presented as an assessment tool (i.e., a checklist) for students to evaluate their progress rather than as a goal or task that the students should strive to achieve or complete respectively. Therefore, drawing a clear link between the activities and exercises in each unit of the textbook and the objectives in the checklist section would make students aware of how activities and exercises in each unit lead to the unit's objectives, thus aiding them in first viewing these activities and exercises as proximal goals and secondly becoming motivated to accomplish them. In the current curriculum, different sections of the textbook are not linked to the unit objectives.

The decision to focus on the short-term goal of winning the contest and the proximal goals of winning the weekly activities instead of a distal goal/vision was based on two reasons. First, each student has his own long-term goal and personal vision and, while literature exists on creating a collective future vision, it is much more problematic than creating a shared goal. Studies have found that when a person holds a vivid future vision of herself/himself, this can positively affect their motivation and play a role in changing their

behaviour in the present (Dörnyei and Chan, 2013). However, conjuring and maintaining a vivid future L2 image of oneself in the classroom setting is a complicated task. Factors such as L2 self-guides (Al-Shehri, 2009), learning styles (Kim and Kim, 2011a), imagery capacity (Dörnyei and Chan, 2013) and gender (You et al., 2016) contribute to students' 'capability of forming vivid, controllable images and retaining them for sufficient time to effect the desired imagery rehearsal' (Morris, 1997, p. 37, cited in Dörnyei and Chan, 2013, p. 443). Moreover, even if such a shared future vision was created, to be motivating, it must be consistently present, as students' visions of themselves tend to fade with time (You et al., 2016). Second, the distinction between goals and visions has recently come into question. In Al-Hoorie and Al Shlowiy's (2020) comparative examination of both goal-setting theory and vision theory, they argue that there exists a significant overlap between the two concepts 'to the extent that it is not clear what contribution vision theory makes to knowledge of learner motivation over and above knowledge already known from goal-setting theory.' They therefore call for a closer examination of the two theories 'to avoid repackaging existing constructs into new terminology' (p. 3).

In this study design, I used game design elements from Nicholson's (2015) two models of meaningful gamification (badges, levels/leaderboards, achievements and points [BLAP] and reflection, exposition, choice, information, play and engagement [RECIPE] models) to create a gameful experience. Elements from Nicholson's (2015) two models of meaningful gamification were carefully chosen first to trigger students' initial interest by employing elements from the BLAP model—the reward-based gamification model that targets extrinsic motivation—and second to expose students to newly personal learning experiences with elements from the RECIPE model—the non-reward-based gamification model that focuses on intrinsic motivation.

Points and leaderboards from the BLAP model were employed to trigger students' interest in the contest, as they are two of the most common gaming elements in education research (Landers et al., 2017) and because of their ability to structure a gamified system (Kapp et al., 2014). Nah et al. (2014, p. 404, citing Gibson et al., 2013) state that combining the use of 'points and leaderboards can be a powerful means of creating competitions and signalling goal attainment, achievement, and status.'

Because the GDMC intervention was designed as a structured contest as opposed to an unrelated series of activities, points and leaderboards were implemented to give the contest structure. Points are a numerical accumulation meant to reward good performance and thus determine the winning team each week, which then quantifies the activity's value. The winning team of each weekly activity was featured on the contest leaderboard for that week, thus connecting all eight activities into one contest. In addition to its structural properties, the gamification of learning with points is both motivating (Barata et al., 2013) and enjoyable (de Freitas and de Freitas, 2013). However, some studies have reported that, although using points increases engagement, students have noted that it can be stressful (e.g., Ejsing-Duun and Karoff, 2014); as such, I mindfully avoided assigning great importance to this element. Therefore, although points were used to judge who won contests, they held no significance beyond the activities' friendly atmosphere (i.e., they did not affect students' regular grades). Like points, a leaderboard is a social artefact used in structural gamification to display a snapshot of the latest results and encourage competition (Kapp et al., 2014); leaderboards are also often used in gamified systems for their motivational power (Burguillo, 2010). This element has been found to motivate and engage students in higher education (Subhash and Cudney, 2018). Moreover,

leaderboards facilitate competition as students compete within their teams to reach the upper ranks of the leaderboard, which is another motivating factor (Knautz et al., 2014). However, a few studies have reported that implementing leaderboards had a demotivating effect on their student samples; for example, Nicholson (2013) conducted a semester-long study to investigate the effect of gamification on university students and determined that once a gap grew between the student at the top of the board and the rest of the class, students saw little reason to pursue more points and improve their positions on the board. In the current contest, each activity represented a proximal goal in the intervention, and the winners of each activity held their title as the winning team until the next activity was held. Having only four to five teams in each treatment level 1 class and only one activity implemented per week made the chance of a large gap between teams in cumulative points (and thus on the leaderboard) unlikely. This structure offered students many opportunities to place their teams at the top of the leaderboard, especially given that all students in each class (G104 and G106) had largely the same English language level.

Elements from the RECIPE model were also used to increase intrinsic motivation by exposing students to a mixture of experiences, creating various ways for them to engage with their L2 and increasing the chances that each student encountered meaningful experiences on a personal level (Nicholson, 2015). The classroom contest offered students total control over team formation and naming, gave them multiple ways to perform the activities, enabled them to engage with authentic materials and other students in friendly competition, allotted them the freedom to explore and fail without consequences and allowed them to reflect on their experiences to identify their interests. Each contest activity aimed to provide the students with a new experience and thus develop their motivation to engage with new domains of the L2 related to their personal

interests. For example, as shown in Table 7, the element of choice is used in the first activity, while exposition is applied in the second activity.

After explaining the intervention design, the contest procedures and the features incorporated from both DMC theory and gamification, I now present and justify the evaluation methods used in the current study.

3.7 Data-collection instruments

The mixed-methods paradigm rests on the idea that when studying complex phenomena, single-method approaches might lead to incomplete results or an inaccurate understanding. Therefore, to investigate a complex phenomenon, the integration of quantitative and qualitative data-collection methods is required. This section explains and justifies the data-gathering techniques employed in this research.

I implemented three techniques to evaluate the intervention's effects: self-plotted motivation-tracking graphs, questionnaires, and focus group interviews. First, after each weekly activity each student marked his motivation level on a simple motivation-tracking graph. Second, students completed three rounds of questionnaire at the beginning (R1), middle (R2), and end of the intervention (R3). Third, after each weekly activity, I conducted focus group interviews with volunteer students from the two experimental groups, providing coffee and snacks to incentivise their participation. During the focus groups, students were shown their motivation levels, as indicated by their own motivation-tracking graphs, and participants were asked to complete two tasks: first, validate their motivational level; and second, explain the fluctuations in their graphs and discuss any discrepancies between individual graphs. Returning data to respondents to

check for accuracy and resonance with their experiences is a technique known as member checking and it is used for exploring and increasing the credibility of results (Birt et al., 2016).

This complementation of instruments allowed me to gain a deeper understating of the GDMC's effects on students' motivation levels through students' perspectives, which provides a thorough understanding of a group's attitudes, thoughts and/or opinions regarding a certain issue (Krueger and Casey, 2014). It should be highlighted that many prior studies that examined L2 motivation employed student or teacher diaries, which were not feasible in my research due to the participants' weekly class load of 30 actual class hours per week (UQU, 2019).

3.7.1 Questionnaires

The purpose of administering the questionnaire was to measure the GDMC intervention's impact on students' L2 motivation in a classroom setting. Many questionnaires exist that measure different aspects of L2 motivation; e.g., Dörnyei and Taguchi (2009) list more than 20 questionnaires that have been used to measure a variety of students' L2 motivational dimensions and attitudes. It is a standard practice in similar situations to generate a pool of appropriate items (usually three or four times the number of items on the final questionnaire) based on previous research that relates to the study's topic (DeVellis, 2012). From this pool (Appendix F), I chose relevant items and modified them for inclusion in the questionnaire employed in this study. The current study used the GDMC intervention to raise students' motivation in their English language classes by implementing a classroom contest, which employed various motivating strategies, such as 'making the tasks more interesting' and 'presenting tasks in a motivating way'

(Dörnyei, 2001, pp. 75–78). Therefore, to measure the GDMC intervention’s effect on student motivation, the questionnaire had to cover all motivational strategies underlying the classroom intervention and tap into students’ motivational statuses during class, ensuring that it covered two motivational dimensions: each student’s perception of motivational strategies and each student’s context-specific motivational disposition relative to the learning experience.

The first dimension relates to students’ perceptions of the motivational levels of their learning experiences (i.e., context-specific motivational disposition relative to the contest) and is covered by the Attitudes Toward the Course group of items (1–17). The second dimension relates to the intervention’s impact on learners’ attitudinal state and is covered by three groups of items: L2 Classroom Linguistic Self-Confidence (items 18–22), L2 Classroom Anxiety (items 23–27) and Willingness to Communicate (items 28–32, see Table 8).

Table 8 Dimensions and scales in the questionnaire

	Dimension covered in the questionnaire	Item groups
Questionnaire to assess GDMC intervention effects on L2 motivation in classroom setting 32 items	The first dimension, which aims to assess students’ perceptions of the motivational levels of their learning experience (i.e., the intervention)	Attitudes Toward the Course (items 1–17)
	The second dimension, which aims to assess the intervention’s impact on learners’ attitudinal state	L2 classroom Linguistic Self-Confidence (items 18–22)
		L2 Classroom Anxiety (items 23–27)
		Willingness to Communicate (items 28–32)

The following paragraphs present a brief description of quantitative methods used in previous studies that involve the two motivational dimensions used in this research.

Dörnyei (2001) provides an extensive list of more than 100 motivational strategies as part of his framework for motivational teaching practice in an L2 classroom. Dörnyei's (2001) motivational teaching practice in the L2 classroom framework is process-oriented (i.e., it considers the temporal aspect of motivation) and thus includes strategies that cover four phases of motivation: creating basic motivational conditions, generating initial motivation, maintaining and protecting motivation, and encouraging positive, retrospective self-evaluation (see Appendix G for the framework). Three studies independently developed questionnaires based on Dörnyei's (2001) framework to measure classroom strategies' effects on students' motivation from their own perspectives: Cheng and Dörnyei (2007), Erdil-Moody (2016), and Guilloteaux and Dörnyei (2008). Items measuring students' attitudes towards their current L2 learning experiences were borrowed from these questionnaires and were reworded to fit the purpose of the current study.

To tap into students' attitudinal statuses in relation to their current learning experiences, I use items related to the intervention's impact on learners' attitudinal state variables. These items comprise the questionnaire's second dimension and are covered by three groups of items: L2 Classroom Linguistic Self-Confidence, L2 Classroom Anxiety (Clément et al., 1994; Guilloteaux and Dörnyei, 2008), and Willingness to Communicate (Peng and Woodrow, 2010). These three sources were chosen for two reasons. First, they include questionnaires designed specifically to assess facets of L2 motivation across a variety of dimensions, including the two dimensions necessary in the present study. These

facets include (a) students' perceptions of their confidence in their L2 learning in relation to accomplishing their L2 goals, (b) their level of anxiety when they use English in the classroom, and (c) their willingness to communicate in L2 in the classroom. Other dimensions beyond the scope of the study (e.g., travel orientation, integrative orientation and attitudes towards Americans) were excluded from the questionnaire pool. Second, questionnaires from which I adapted the items in my study are well known, have been widely used and have been reported as valid and reliable in many learning-motivation studies. Therefore, the combination of these four groups of items should provide a clear assessment of students' motivation levels during the intervention (see questionnaire used in the current study in Appendix H).

The two dimensions covered by the questionnaire comprised 32 items on a six-point Likert scale with possible responses of 'strongly disagree,' 'disagree,' 'slightly disagree,' 'slightly agree,' 'agree,' and 'strongly agree.' This scale was employed (1) to eliminate the neutral option that is typically found on five-point Likert scales, thereby forcing participants to communicate their feelings, and (2) due to its widespread use in qualitative motivation research. In constructing the questionnaire and wording the items, I followed Dörnyei and Taguchi's (2009) guidelines.

DMC theory is particularly concerned with examining L2 motivation as a system that changes over time without relating these changes to individual elements that are particular to a specific context or intervention, such as the use of points or leaderboards (this relationship between motivation fluctuation and motivational elements and its intensity were examined during the focus group interviews). Therefore, I administered the questionnaire to the three participating groups (the treatment level 1 group, treatment

level 2 group and control group) at three different points in time: the beginning (R1), middle (R2) and end (R3) of the intervention (see Section 3.8 for the results). Self-reported measures, such as a series of questionnaires, allow both high and low motivation levels to be detected at various points in time, which is essential for two reasons. First, it can more effectively confirm the intervention's effectiveness in raising motivation levels among a larger number of students than individual interviews, as interviewing all participants after every intervention session (i.e., activity) is not feasible, and second, it addresses the previously discussed temporal aspect of motivation. Section 3.7.4 discusses reliability concerns such as instrument decay (i.e., instrument overuse).

3.7.2 Focus group interviews

Focus group interviews were the second data-collection method employed in this study. Many types of interviews are used in educational research, of which Cohen et al. (2017) identify five: the (1) structured interview, (2) semi-structured interview, (3) unstructured interview, (4) non-directive interview and (5) focused interview. They assert that these types of interviews fit onto a continuum according to their 'openness of their purpose, their degree of structure, the extent to which they are exploratory or hypothesis-testing, whether they seek description or interpretation, or whether they are largely cognitive-focused or emotion-focused' and that the main reason for choosing one type over another is 'fitness for purpose' (Cohen et al., 2017, p. 509). Focus groups were used in the current study for three reasons. First, the GDMC intervention was conducted as a contest that involved collaborative work and holding focus groups allowed for an exploration of how the participants incorporated the perspectives of others in constructing their own understanding and opinions on the topics of discussion (Ary et al., 2018). Focus groups are designed to examine the interactions between interviewees who have experienced a

shared activity (Denscombe, 2014), thus, participants interacted with each other rather than with the researcher and the data that emerged from those interactions could not be gathered using individual semi-structured interviews. Second, according to Cohen et al. (2017), the artificial nature of focus groups discussions is a point of strength, as their inorganic development enables the researcher to concentrate on particular topics, yielding insights that might not be possible in individualised unstructured interviews. Third, focus groups are economical regarding time, often producing a large amount of data in a short period.

As discussed earlier, this study examined GDMCs' ability to initiate and sustain L2 motivation in the classroom. Since qualitative methods are meant to complement quantitative findings by deeply investigating the GDMCs' effects on student motivation levels through examining dynamic interactions from students' perspectives, focus group interviews were deemed to be suitable as a data-collection instrument.

Creswell (2013) states that in the literature on interviews, the three most commonly covered areas are the interviewer's (1) preparation for the interview, (2) construction of effective research questions and (3) execution of the actual interview. The preparation and execution stages mainly target improving the interview's instrumentality and addressing probable biases (these stages are discussed further in Section 3.7.4). Brinkmann and Kvale (2015) argue that the most common strategy for generating interview questions is deriving them from research questions, so the interview questions for the focus group discussions were open-ended and worded to cover the main research inquiries with a set of follow-up questions that probed the relationships between students' motivation levels and the GDMC motivational elements (see the list of focus group

interview questions in Appendix I). To collect qualitative data, after each weekly activity, I conducted focus group interviews with volunteer students from the treatment groups (in both levels 1 and 2). In the focus group interviews, I followed Dörnyei's (2007) recommendation of involving five to 10 students per interview to provide a variety of perspectives and allow everyone to take part in the discussion. I also followed the advice of Ary et al. (2018) of keeping the interviews around one hour long and students were not allowed to participate in more than one focus group. This was done to ensure that the focus group interviews did not take too much of the students' time, to prevent tiredness and thus lack of focus during long interviews, to and maximise the number of different perspectives. Most students expressed willingness to participate in these interviews. The goal of qualitative studies is attaining representation, so the focus group interviews were conducted throughout the intervention until I felt that interviewing more participants would not result in additional perspectives or information (see the results in Section 3.8).

The interviews aimed to determine which elements of the GDMC intervention affected the students and why; e.g., I asked whether the intervention helped the students reflect on their goal of learning English, why participating in a classroom contest motivated them and how the points and leaderboard elements motivated them, if at all. I asked the students if the contest opened them up to new experiences and helped them use the L2 without fear of failure (element of play), inquired about their perceptions of those experiences and asked if such exposure motivated them to use their L2 more. Such questions helped investigate the effectiveness of the motivational elements intended to trigger the students' initial interest by targeting external motivation (e.g., points, leaderboards and the element of competition) and helped examine the effectiveness of motivational elements geared towards creating meaningful experiences that raise internal motivation (e.g., reflection,

freedom of choice, and play without fear of failure). The interview question list contained questions about the students' general L2 motivation levels before and during the intervention, their overall perceptions regarding their learning experiences, and their opinions on whether their experiences during the intervention would continue motivating them to engage with English in the long term.

3.7.3 Self-plotted motivation-tracking graphs

Following each weekly activity and prior to the focus group interviews, each student was asked to indicate his motivation level on the motivation-tracking graph (see Appendix J). The purpose of this data-collection instrument was threefold. First, completing the motivation-tracking graphs took the students only a few seconds each week, which allowed me to assess students' overall motivations while avoiding the overuse of questionnaires, which would have led to instrument decay. Second, I was able to track students' motivation levels, determining how their motivation levels rose and fell during the intervention. Third, I could identify how motivation fluctuated and produce data that illustrated the shape of the motivational current created by the GDMC intervention, thus revealing the trajectories, or trendlines, of students' motivation levels, both on the individual and collective levels.

Although the use of motivation-tracking graphs is not very common in L2 motivation research, several longitudinal studies have established them as useful elicitation devices to track students' L2 motivational changes (e.g., Chan et al., 2014; Henry, 2014; Henry et al., 2015; Miura, 2010; Yashima and Arano, 2015). Song and Kim (2017) examined the reliability of self-plotted motivation-tracking graphs and found 'that the use of such

retrospective graphs is highly reliable' (p. 92). Therefore, the use of motivation-tracking graphs was deemed appropriate in the present study.

3.7.4 Validity and reliability of data-collection methods

Both the qualitative and quantitative aspects of a study must demonstrate trustworthiness. The terms 'validity' and 'reliability' are often used to discuss research rigour. Validity refers to research instruments' abilities to measure what they are designed to measure, whereas reliability refers to the collected data's consistency; that is, the instruments' abilities to produce consistent results across a research population (Bryman, 2016). Reliability is central to quantitative instruments because they must exhibit consistency in both their construction (internal reliability) and measurement accuracy. In the qualitative paradigm, however, the researcher is considered the instrument of measurement, so every time the researcher (i.e., the instrument) is changed, the method's ability to produce the same results decreases dramatically. Hence, ensuring instruments' abilities to replicate results (reliability) should not be the focus of discussion regarding research trustworthiness in qualitative studies. In this regard, Winter (2000) argues that results' accuracy and transferability are more important factors than the instrument's ability to reliably replicate results. I have taken several measures to properly address reliability and validity in the present research. The following paragraphs describe research trustworthiness by discussing the internal reliability of the quantitative instrument and validity of the qualitative instrument, as the data's validity (in this case) depends on the researcher's effort, research skill and knowledge of the study topic.

To ensure the questionnaire's reliability, it was piloted with 14 students from the present study's same context (the UQU foundation year) to ensure that the items were clear, easy

to understand, and reliable. A professional translator translated the questionnaire into Arabic to ensure the translation's accuracy, and no participants reported issues understanding any items. Moreover, the collected data were entered into Statistical Package for the Social Sciences (SPSS) software for a reliability test, and the Cronbach's alpha test was performed to evaluate the scales' internal reliability, which is the most commonly used measure to assess the internal reliability of scales that offer more than two possible answers (Mackey and Gass, 2005). Field (2013) notes that Cronbach's alpha rests on the idea that individual questionnaire items should generate results that are consistent with the questionnaire's overall results. The minimum acceptable Cronbach's alpha score is commonly considered 0.7, while a score of 0.8 or higher indicates good reliability; conversely, extremely high reliability (above 0.9) usually depicts redundancy in the questionnaire items and is thus undesirable (Gliem and Gliem, 2003). The GDMC motivation questionnaire depicted good internal reliability according to the four groups of items employed to measure the two intended dimensions (see Tables 9, 10, 11 and 12, respectively).

Table 9 Cronbach's alpha coefficient for the internal consistency for the Attitudes Toward the Course (items 1–17)

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardised items	N of items
0.858	0.860	17

Table 10 Cronbach's alpha coefficient for the internal consistency for the L2 Classroom Linguistic Self-Confidence (items 18–22)

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardised items	N of items
0.851	0.857	5

Table 11 Cronbach's alpha coefficient for the internal consistency for L2 Classroom Anxiety (items 23–27)

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardised items	N of items
0.863	0.869	5

Table 12 Cronbach's alpha coefficient for the internal consistency for Willingness to Communicate (items 28–32)

Reliability statistics		
Cronbach's alpha	Cronbach's alpha based on standardised items	N of items
0.790	0.790	5

Instrument decay is a threat to internal validity (i.e., the reliability of the findings) and is often present when conducting multiple testing, as was the case in the current research design. When the same instrument is used to collect data from the same sample on multiple occasions, the instrument becomes less effective (i.e., it decays). For example, when the same participants take the same questionnaire multiple times during a study, they may become aware of the study's intent or become tired of repetitively completing the same questionnaire and consequently provide unreliable input. In the current study, quantitative methods (i.e., the motivation-tracking graphs and questionnaire) were used multiple times during the eight weeks of the intervention with the same participants. The

same applied to the qualitative data-collection method; because qualitative data were collected via focus group interviews, the interviewer was the instrument and may have become less focused and/or interactive when conducting multiple repetitive interviews. In the next paragraphs, I discuss the measures taken to minimise the effects of instrument decay.

To minimise the effects of instrument decay with the questionnaire, I administered it only three times, which is the minimum number of data-collection rounds that allows the examination of the temporal aspect of motivation. Moreover, the questionnaire administration was as evenly spaced across the intervention as possible—at the beginning, middle and end of the intervention (once every four weeks)—to evenly cover the intervention’s duration and minimise instrument decay. Although the motivation-tracking graphs were completed on a weekly basis (after each activity), they only required students to mark their motivational level on the graph with an X mark, which did not take much time or cognitive effort to do. Since completing the motivation-tracking graphs took only a few seconds and required little effort, it was likely unaffected by instrument overuse.

Regarding the validity of the qualitative methods, according to Golafshani (2003), many qualitative scholars have either established their own concepts of validity or adopted concepts that they view to be more appropriately termed, such as quality and trustworthiness (e.g., Davies and Dodd, 2002; Stenbacka, 2001). The validity of data collected from students during interviews can be threatened by, for example, researcher bias and perceived power dynamics between the interviewer and the interviewees. Kvale (1994) argues that validity depends on the interviewer’s ‘quality of craftsmanship’

because he/she makes defensible knowledge claims (as cited by Seidman, 2006, p. 23). To lessen the threats of researcher bias and any perceived power dynamics to the data's trustworthiness, I took several measures to enhance the interview quality during the preparation and execution stages. I prepared a checklist to ensure proper measures were taken before, during and after the interviews (adopted from McNamara, 2011; see Appendix K), and, since the interviewer is considered the instrument of a qualitative method (i.e., the focus group interviews), I followed Kvale and Brinkmann's (2009) recommendations during the interview sessions. Kvale and Brinkmann (2009) list the following actions and attributes a skilled interviewer should have: be knowledgeable on the subject matter; conduct a well-structured interview with clearly worded questions and well-placed follow-up questions so that the participants understand each question's purpose; choose an informal setting with few distractions; be sensitive and allow the interviewees to answer at their own pace and in their own way; be alert to nonverbal cues; clarify and confirm answers with each participant; and, finally, take measures that allow them to recall and refer back to earlier parts of the interview. These measures are geared towards increasing the data's validity during each interview session. Other measures to increase trustworthiness were also utilised and are discussed below.

Lincoln and Guba (1985) developed their own criteria for trustworthiness in qualitative research. They suggest that the concept of credibility should be used in lieu of internal validity and argue that credibility could be established through several strategies. Of the ones they listed, I employed prolonged engagement and triangulation. Prolonged engagement involves the researcher spending sufficient time in the study's field until he/she understands its culture and social norms, which can be accomplished by observing various aspects of the study's context as well as interacting and developing relationships

with individuals in that context. I am thoroughly familiar with the study's context, as I taught English classes to foundation-year students at UQU for seven years prior to commencing my PhD studies. Moreover, I was in the field and met with the participating students and addressed any questions or concerns they raised prior to the intervention to build trust and foster rapport with each student. Triangulation involves the use of more than one research technique, each of which might illuminate a different facet of the phenomenon under study (Mackey and Gass, 2005). Cohen et al. (2017, p. 266) state, 'Triangular techniques are suitable when a more holistic view of educational outcomes is sought, or where a complex phenomenon requires elucidation,' which was the case in the current study. Many types of triangulation exist; indeed, Cohen et al. (2017, p. 253) list nine types, including the 'triangulation of methods.' To improve its validity and reliability, this study triangulated methods to '[analyse] the consistency of findings generated by different data-collection methods' (Patton, 2002, p. 556). In other words, each of the three data-collection techniques was geared towards exploring a different aspect of the same phenomenon (i.e., L2 motivation) to improve the consistency of the findings and to strengthen the research rigour. Additionally, interviewing multiple participants with the same parameters enabled me to 'connect their experiences and check the comments of one participant against those of others' to check the internal consistency of the collected data (Seidman, 2006, p. 24).

3.8 Collected data and data preparation

As explained earlier, three data-collection instruments were used. First, a motivation-tracking graph was employed to track changes in the students' motivation over the eight-week period (see example in Appendix L). All participants in all groups marked their motivations on the motivation-tracking graphs each week (Table 13).

Table 13 Number of completed self-plotted graphs

Class	Number of students who indicated their L2 motivation on the self-plotted graph
G102	20
G103	20
G104	22
G106	22
Total	84

All 84 graphs were digitised into Microsoft Excel format to be analysed to search for significant statistical differences. Using Excel allowed me to detect fluctuations in motivation lines, trendlines, and trajectories for groups and/or individuals.

The second data-collection instrument was the questionnaire, which was utilised to assess students' motivation levels in more detail. All participants completed the same questionnaire at R1, R2 and R3 (Table 14).

Table 14 Number of students' motivation levels assessment questionnaires completed

Class	Number of responses in the first round (Week 1 of the intervention)	Number of responses in the second round (Week 4 of the intervention)	Number of responses in the third round (Week 8 of the intervention)
G102	18	17	17
G103	20	19	19
G104	22	20	19
G106	21	18	18
Total number of responses: 228			

Participants completed the questionnaire using SurveyMonkey.com (see example screenshot in Appendix M); therefore, the data were already digitised and ready to be analysed using SPSS Statistics.

The third data-collection instrument was focus group interviews. After each weekly activity, a focus group interview was conducted. In total, 11 focus group interviews were conducted, which produced 7.8 hours of recordings (Table 15). All focus groups were conducted in Arabic.

Table 15 Focus group interviews according to section, date and time

Serial number	Section	Date	Focus group interview length	Script total word count
1	G106	9/10/2019	39:34 minutes	4,269
2	G104	10/10/2019	40:09 minutes	3,731
3	G103	10/10/2019	46:31 minutes	5,866
4	G106	16/10/2019	49:15 minutes	4,493
5	G104	17/10/2019	46:49 minutes	5,279
6	G103	17/10/2019	47:20 minutes	5,581
7	G104	22/10/2019	44:46 minutes	4,010
8	G106	23/10/2019	40:49 minutes	3,594
9	G103	24/10/2019	32:10 minutes	3,151
10	G106	6/11/2019	50:51 minutes	4,371
11	G104	12/11/2019	30:44 minutes	3,364

The first qualitative data-analysis step involves ‘preparing the data [which] means putting them into a format that lends itself to analysis’ (Cohen et al., 2017, p. 645). Interview recordings were translated and transcribed into Microsoft Word files immediately after the focus groups to protect nonverbal details from being forgotten, as immediate transcription allows for the clarification of any unclear details with interviewees while the interview discussion is still fresh in the mind. During transcription, I translated all Arabic into English. In addition to this, although being a native Arabic speaker gives me an advantage in capturing cross-cultural connotations, a licensed professional translator was employed to check the English transcription’s accuracy against the Arabic recordings

to avoid any inaccuracies. Moreover, since the focus of this study was on content rather than linguistic analysis, minor editing was performed to remove distracting surface phenomena, such as ‘umming’ and ‘ahhing’ and unrelated side discussions between the participants. The transcription process resulted in a corpus of 47,709 words and the transcription files were entered into NVivo for data analysis.

3.9 Chapter summary

The aims of this chapter were to explain and justify this study’s method of data collection and analysis, present the reasons for using a mixed-methods approach, describe the study’s context and participants and explain the measures taken to address ethical issues of risk or harm. It provided a detailed overview of the design of the research as an educational intervention, including a rationale for the contest and the activity design choices and a comprehensive description of the intervention procedures. I explained why motivation-tracking graphs, questionnaires and focus group interviews were the most suitable instruments to answer the research questions. I discussed each data-collection method in detail, explaining the strengths and weaknesses of each instrument, how it was used and how I ensured its trustworthiness. Finally, the chapter ended with a description of the collected data and data preparation. The next chapter discusses the data analysis process and findings.

Chapter 4 Quantitative data analysis and findings

4.1 Introduction

This chapter presents the results of the analysis of the quantitative data collected for the study. First, I outline the data analysis plan and rationale. Next, the data screening and cleaning process is described before discussing the data analysis procedures. After that, I present the descriptive statistics and comparative analyses that highlight the motivational impact of the GDMC intervention based on the 32-item questionnaire results (see Appendix N). This includes the findings of the questionnaire's two dimensions and the overall impact of the GDMC intervention on students' motivation. Lastly, I present the data analysis and findings of the motivation-tracking graphs.

4.2 Quantitative data analysis outline

In the current study, I used two multiple statistical analysis tools (one-way analysis of variance [ANOVA] and Kruskal-Wallis H testing) to detail whether the investigated motivational dimensions had a statistically significant effect across all groups. I also tested the results using a series of post-hoc tests to determine which differences between the groups were statistically significant. The analysis was carried out as follows:

Control versus treatment level 1

Control versus treatment level 2

Treatment level 1 versus treatment level 2

I computed the same comparative analysis presented in the above table at the aforementioned beginning (R1), middle (R2), and end of the intervention (R3). This section reports the findings of multiple regression analyses while focusing on the two dimensions for which the questionnaire was designed. I also computed the overall value of the two motivational dimensions. The results of this computation are also described in this section in order to indicate the intervention's overall successfulness in raising students' motivation.

Finally, to examine whether students' motivation increased or decreased during the eight weeks of the intervention, I present a data analysis relating to the intervention's effect on treatment level 1 group across R1, R2, and R3. I used repeated measures ANOVA; a statistical analysis technique similar to one-way ANOVA but used to detect changes (within-group) over time. Repeated measures ANOVA is considered as an extension of the dependent t-test. However, unlike the ubiquitous paired-samples t-tests, which are limited to comparing two means, repeated measures ANOVA can be used with three levels for the independent variable (R1, R2, and R3) and with one or more dependent variables (means of students' L2 motivation) within-subjects (the same participants, i.e., treatment level 1 group).

4.2.1 Data screening and cleaning

All data were computed in IBM's SPSS statistical software version 25. However, the application of any statistical techniques requires datasets that are cleared from outliers (extreme values), as they significantly distort test results; when they are included in analyses, there is a high probability that the results will not be true, reliable, or valid. During this process, I tested for two types of outliers: univariate outliers, which are

participants who have extreme values on one testing variable, and multivariate outliers, which are participants who have an unusual profile of answering on multiple dependent variables when compared to the group average.

In the data screening, one participant was removed because of missing data points in R2 and R3 of the questionnaire. In the next step, data was screened for univariate outliers. The criterion for univariate outlier removal was the value of the standardised dependent variables. More specifically, univariate outliers were detected by calculating standardised values, or z -scores, which determine the distance between dataset points compared to standard deviation. All participants who had a standardised z -score outside the range of ± 3.00 on at least one of dependent variable were considered outliers and removed from further analysis. Finally, the data was screened for multiple outliers using Mahalanobis's distances, a technique that identifies potential outliers in a given dataset (Cohen et al., 2017). This technique measures the distance between the position of dataset points vis-a-vis a central point in the dataset that is viewed as an overall mean (Aggarwal, 2015). No multivariate outliers were detected through Mahalanobis's distances.

4.2.2 Data analysis procedures

Since the study involves a combination of multiple independent group tests and designs (treatment level 1 group, treatment level 2 group, and control group) and subjects participants to repeated measures (testing repeatedly at R1, R2, and R3), I determined that split-plot ANOVA, or mixed-model ANOVA, to be the best option (Field, 2013). My testing models include two independent categorical variables, with each factor having more than one level and one dependent numerical variable (interval, continuous variable). The two independent categorical variables are the treatment group, which is a categorical

variable that examines effects between-subjects; and the round of testing (R1, R2, and R3), which is also a categorical variable (time) that examines effects within-subject. The dependent numerical variable is the motivation score, which is an interval or continuous variable. It is called split-plot or mixed-model because the sample is split into levels of treatment and the testing examines one or more between-subject effects and one or more within-subject effects. Based on the above description, split-plot ANOVA, a parametric test, is the most suitable statistical technique for my study design as it has the greatest statistical power (i.e., the greatest ability to detect statistical differences when they exist) and is mathematically adjusted to avoid producing statistically significant results by chance. However, since split-plot ANOVA is a parametric testing technique, three assumptions must be met before use. The first is that independent random sampling has been used. The second is normality, meaning that the data on the dependent variable is normally distributed. The third is homogeneity of variance, which means that dataset points of two or more samples are distributed equally relative to the mean (Salkind, 2020) and that, when used with repeated measures, ‘the variance of one variable should be stable at all levels of the other variable’ (Field, 2013, p. 149).

Graphs tend to examine homogeneity of variance in correlational analysis, such as regression, whereas Levene’s test is used for groups of data (Field, 2013). Levene’s is a standard test used in statistics to determine whether between-group variances are homogenous. Glass (1966, p. 188) explains that ‘Levene’s test is simply a one-way analysis of variance on the absolute values of the differences between each observation and the mean of its group.’ In other words, it checks the null hypothesis that variances are equal across groups. For example, if the significance value is $p \leq 0.05$, then the null hypothesis has been violated; if the significance value is $p > 0.05$ (non-significant), then

it meets the assumption, as the variances are roughly equal. In my analysis, Levene's test showed significant results ($p < 0.05$), which means that the dataset variances were not homogenous. Since the homogeneity of variance assumption was violated, split-plot ANOVA was deemed inapplicable. Therefore, I conducted a series of separate analyses for each comparison model.

The comparisons plan aimed to compare students' perceptions of the motivational level of their learning experience, which consisted of two dimensions covering four categories (groups of items) measured using the questionnaire between groups (treatment level 1 group, treatment level 2 group, and control group) and across data collection rounds (R1, R2, and R3). The comparisons were executed following the plan in Figure 5.

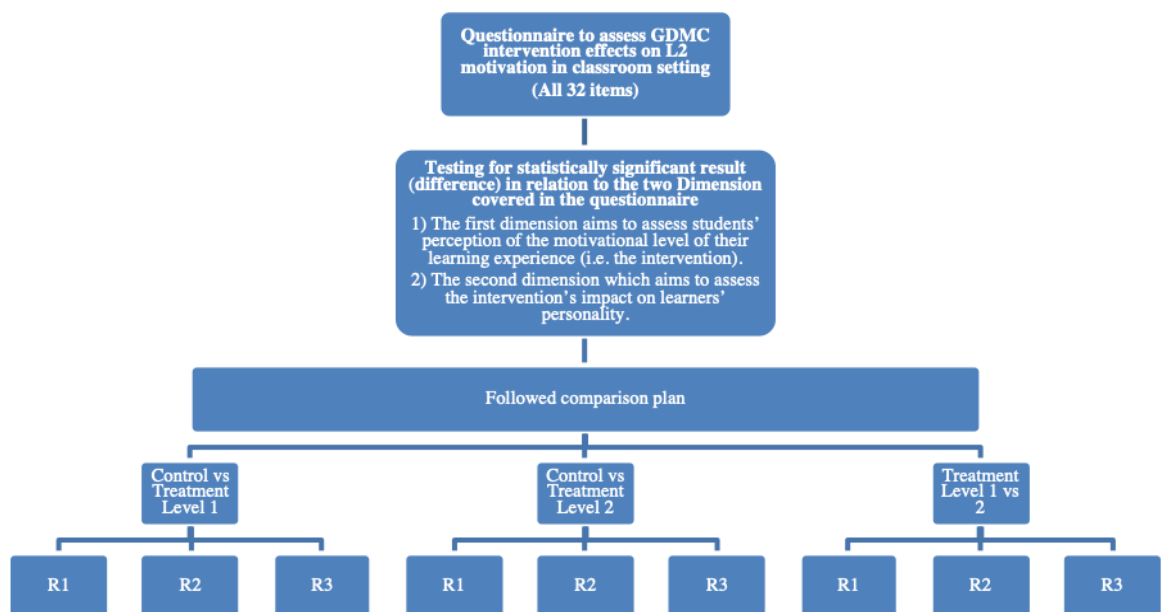


Figure 5 Qualitative data comparisons plan

I consider my study's collected data to be both self-rating and interval (a type of continuous data). Normally, data that involves rating or ordering is considered ordinal data and it tends to be analysed with non-parametric tests, while continuous data tends to

be analysed with parametric tests (Cohen et al., 2017). However, this classification can be problematic in certain cases and is much debated in the literature (Awan and Dako, 2018; Norman, 2010; Sullivan and Artino Jr, 2013). For example, many researchers do not consider self-rating data (e.g., asking participants to rate their confidence/motivation) to be ordinal (Field, 2013). Moreover, Kinnear and Gray (2006, p. 9) state that ‘data in the form of ratings are a grey area, and there has been considerable debate over whether they should be analysed with parametric or nonparametric tests.’ Most motivation studies that use self-reported Likert scales do not treat data as ordinal (e.g., Al-Shehri, 2009; Busse, 2010; Ryan, 2008; Taguchi et al., 2009; Yashima, 2009). Because parametric tests are widely used in motivational research and are an accepted practice in social science research in general (Agresti, 2018; Pallant, 2013; Sharma, 1995), my study’s self-reported data were considered continuous. Therefore, I deemed parametric tests, which have greater statistical power (i.e., they are more likely to detect statistical difference if an effect actually exists) to be most suitable (Cohen et al., 2017).

Although my study preferred parametric tests, Sullivan et al. (2016) and Willett (2013) argue that such tests can only be used if all parametric methods conditions are met; if not, equivalent non-parametric test should be used instead. According to Willett (2013) parametric methods conditions are the following:

- 1) The sampling distribution is normally distributed. Normality here refers to the sample size and not necessarily the data itself. This condition is met if the sample size ($n_1 + n_2 \geq 30$), per the central limit theorem, which is typically used to ensure normality of sampling distribution (Park, 2009);
- 2) The ordinal scale has five or more levels;
- 3) No extreme scores are detected (i.e., excluding outliers from the sample); and

- 4) Homogeneity of variance of the two samples are compared.

Therefore, the main test used in this study's data analysis was ANOVA, which is for studies that involve one categorical independent variable with at least two levels (between independent groups under different conditions) and one continuous dependent variable (the numerical variable of the motivation score).

If a study includes only two independent groups of participants in the categorical independent variable, it can use one-way ANOVA. Nonetheless, the well-known independent samples t-test is more common. One-way ANOVA and the t-test will give the same result. However, in my study, there are more than two levels of categorical independent variables (i.e., more than two independent groups). Namely, participants' motivation was measured under three different conditions: treatment level 1 group, treatment level 2 group, and control group. Therefore, to test the null hypothesis (H_0 , i.e., there is no difference between group means), one-way ANOVA had to be used to determine equality of the population's means (Kinnear and Gray, 2006; Pallant, 2013).

I ran a series of one-way ANOVA tests across data collection rounds (R1, R2, and R3) to determine if statistically significant differences between the means of independent groups truly exist. As explained earlier, it is recommended to use a non-parametric equivalent of one-way ANOVA if parametric assumptions are violated (Field, 2013, p. 391; Pallant, 2013, p. 110). The Kruskal-Wallis test is a recommended non-parametric alternative to one-way ANOVA as it tests data that includes one categorical independent variable with multiple levels and one continuous dependent variable (Field, 2013). I followed this recommendation for my analysis.

4.3 Findings of the first dimension

In this section, I present the findings of the first dimension which aims to assess students' perceptions of the motivational level of their learning experience (i.e., the intervention), evaluated through the Students' Attitudes Toward the Course group of items (1–17). As explained earlier, split-plot ANOVA, or mixed-model ANOVA, was my first choice, but to compute split-plot ANOVA, all conditions must be met across all groups in R1, R2, and R3. However, Levene's test for homogeneity of variance was significant for R2, $F^6(2, 65) = 4.84, p = 0.01$, which means that its variance was not homogenous or approximately equal across all groups. This means that not all the necessary conditions for parametric methods, including both a split-plot and one-way ANOVA analysis, were satisfied in R2. Hence, the data for R1 and R3 were analysed with two separate one-way ANOVA analyses, and the data for R2 with the non-parametric one-way ANOVA counterparts for independent samples, using the Kruskal-Wallis H test.

4.3.1 First dimension effect in R1

The effect of treatment in R1 was tested with a one-way ANOVA. The dependent variable—students' perceptions of the motivational level of their learning experience—was distributed normally, with skewness and kurtosis in a range between +/-1. The Levene's test for homogeneity of variance was not statistically significant $F(2, 65) = 0.02, p = 0.98$; hence, I conclude that the variance was homogenous across all groups and that all assumptions for ANOVA were satisfied.

⁶ (F) here denotes Levene's test and the two different degrees of freedom (df1, df2), followed by its significance p .

The analysis results show that the treatment effect on students' perceptions of the motivational level of their learning experience in R1 was not statistically significant, with $F^7(2, 65) = 2.02, p = 0.14$. Descriptive statistics are presented in Table 16.

Table 16 Descriptive statistics of first dimension effect in R1

Group	Mean	SD
Control	75.38	8.37
Treatment level 1	71.09	8.34
Treatment level 2	69.53	9.92

In conclusion, the treatment in R1 (the beginning of the intervention) did not significantly influence students' perceptions of the motivational level of their learning experience. The means are presented in Figure 6.

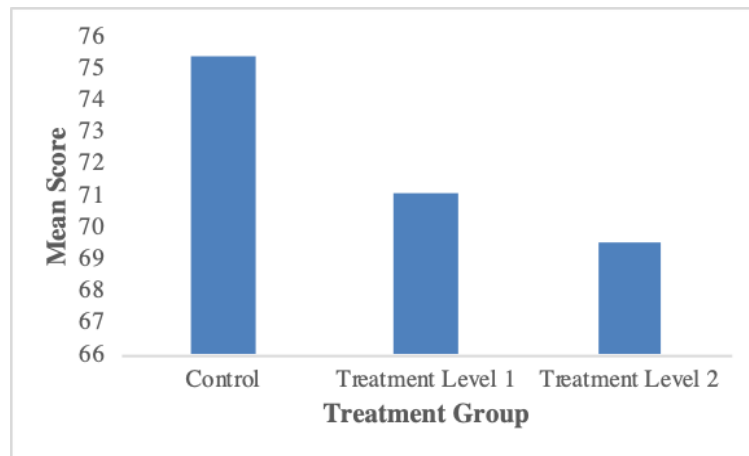


Figure 6 Average students' perceptions of the motivational level of their learning experience

⁷ (F) here denotes the one-way ANOVA test and its two different degrees of freedom (df1, df2), followed by its significance p .

4.3.2 First dimension effect in R2

Because Levene's test for homogeneity of variance was significant in R2, the effect of the treatment in R2 was tested with a Kruskal-Wallis H test. The analysis results show that the treatment significantly affected students' perceptions of the motivational level of their learning experience in R2, with $H^8(2) = 14.41, p = 0.001$.

At this point, it should be noted that literature considers one-way ANOVA and its non-parametric equivalent Kruskal-Wallis H test to be omnibus tests; that is, they can show whether the three groups differ but cannot specify where the significant difference is (e.g., group1/group2, group1/group3, etc.). In order to find exactly where these differences lie, a series of post-hoc comparisons is needed. There are many types of post-hoc tests, such as least significant difference (LSD), Tuckey's test, Scheffe's test, and the Bonferroni correction (SPSS version 25 has 18 types of post-hoc tests). However, the literature shows no evidence to indicate which test is superior, as each has its advantages and disadvantages.

After a significant result from the Kruskal-Wallis test, Field (2013) recommends using a series of Mann-Whitney tests with a Bonferroni correction. Similar to the Kruskal-Wallis H test, the Mann-Whitney U tests for statistical differences between independent groups under different treatment conditions. Whereas the Kruskal-Wallis test is geared towards comparing three or more groups, the Mann-Whitney test can only accommodate two

⁸ (*H*) here denotes Kruskal-Wallis H test with its degrees of freedom (df), followed by its significance *p*.

groups (it is essentially the non-parametric alternative to the well-known independent t-test), which makes it a suitable non-parametric test to conduct direct comparisons. However, using a Mann-Whitney test for multiple comparisons as a post-hoc following a Kruskal-Wallis test will inflate the type I error rate (Field, 2013). This type of error is caused by the analysis process failing to support a null hypothesis (false positive)—that is, by accepting a statistical difference effect in the intervention when no such effect exists (Greasley, 2007). When conducting a Mann-Whitney test, the chance of making a type I error is typically 5% (Cohen et al., 2017). Therefore, by running a Mann-Whitney test on the same data manifolds, the chance of making a type I error increases by approximately 5% each time the test is conducted.

To ensure that the type I error rate does not inflate to more than 0.05, I used the robust and popular Bonferroni correction approach, ‘with which the significance criterion (usually $\alpha = 0.05$) is set at α / k , in which k represents the number of comparisons of interest’ (Sullivan et al., 2016, p. 6). Field (2013, p. 565) advises being selective regarding which pairwise comparisons to conduct, because if the number of pairwise comparisons is too large, ‘you’ll soon discover that you quickly end up using a critical value for significance that is so small that it is very restrictive.’ However, my study has only three comparisons, which translates to ($\alpha = 0.05 / 3 = 0.017$), keeping the alpha across all the tests at a reasonable level (Pallant, 2013). The results of the Mann-Whitney U tests are presented in Table 17.

Table 17 Results of Mann-Whitney U tests

Compared groups	Mann-Whitney U statistics	<i>p</i> - value
Control versus treatment level 1	138	0.004*
Control versus treatment level 2	125.50	0.67
Treatment level 1 versus treatment level 2	130.50	0.001*

*Statistically significant results

The results presented in Table 17 show that treatment level 1 significantly and positively influenced students' perceptions of the motivational level of their learning experience in R2 (mean rank = 30.06) when compared to the control group (mean rank = 17.13). However, the effect of treatment level 2 was not statistically significant (mean rank = 17.50) when compared to the control group (mean rank = 16.47), which means that the treatment level 2 did not significantly change students' perceptions of the motivational level of their learning experience. Finally, in treatment level 1, the students' perceptions of their motivation levels were significantly more positive (mean rank = 31.27) than those of students in treatment level 2 (mean rank = 16.68).

4.3.3 First dimension effect in R3

All assumptions for ANOVA were satisfied in R3: the dependent variable; students' perceptions of the motivational level of their learning experience were distributed normally, with skewness and kurtosis in ranges between +/-1; and Levene's test for homogeneity of variance was not statistically significant, with $F(2, 65) = 1.56$, $p = 0.22$. Therefore, one-way ANOVA was used to test the effects of treatment in R3. The analysis results show that the treatment effect on students' perceptions of the motivational level of their learning experience in R3 was statistically significant, at $F(2, 65) = 58.59$, $p < 0.001$.

To show which groups differ from others, differences between all three groups were further tested with a series of post-hoc tests. Typically, two post-hoc tests are used following significant results from a one-way ANOVA: an LSD test and a Tuckey's test (Field, 2013; Kinnear and Gray, 2006), both of which are used in pairwise comparisons and can be thought of as a series of paired-samples t-tests. Tuckey's test works by comparing all possible groups (comparing every mean with every other mean) and is thus recommended for comparing more than three independent groups. An LSD test makes direct comparisons between a pair of individual groups (as opposed to all groups) by computing the least significant difference between the two means. My study has only three groups, meaning only three pairwise comparisons can be made, so Tuckey's and LSD tests are equally suitable. I chose to run an LSD test, because for cases where $K = 3$ (i.e., precisely three independent groups) the Fisher LSD is recommended as it is the adequate in terms of controlling familywise comparisons and/or being the most powerful; Tuckey's test is recommended in the case of $K > 3$ (Seaman et al., 1991, p. 584), as it is less powerful than LSD. However, since the LSD test is similar to well-known paired-samples t-tests, it does not control well for type I errors when run multiple times. In other words, the LSD test is more powerful but also prone to inflating type I error rates with increased testing; Tuckey's test is more conservative (less powerful in detecting statistical differences when they truly exist) and thus provides better protection against inflation of type I errors. In order to control the inflation of α -error possibilities, I applied a Bonferroni correction of α -level ($\alpha = 0.05 / 3 = 0.017$). The results are presented in Table 18.

Table 18 Results of LSD post-hoc tests

Compared groups	<i>p</i> -value
Control versus treatment level 1	> 0.001*
Control versus treatment level 2	0.33
Treatment level 1 vs treatment level 2	> 0.001*

*Statistically significant results

As Table 18 shows, the treatment effect in R3 significantly influenced students' perceptions of the motivational level of their learning experience. More specifically, treatment level 1 significantly and positively influenced this perception (M = 88.06, SD = 8.72) when compared to the control group (M = 63, SD = 12.73). However, the effect of treatment level 2 was not statistically significant, meaning that treatment level 2 did not influence these perceptions. Finally, the students in treatment level 1 had significantly more positive perceptions of the motivational levels of their learning experience compared to students in treatment level 2 (M = 59.47, SD = 10.74). Mean scores are presented in Figure 7.

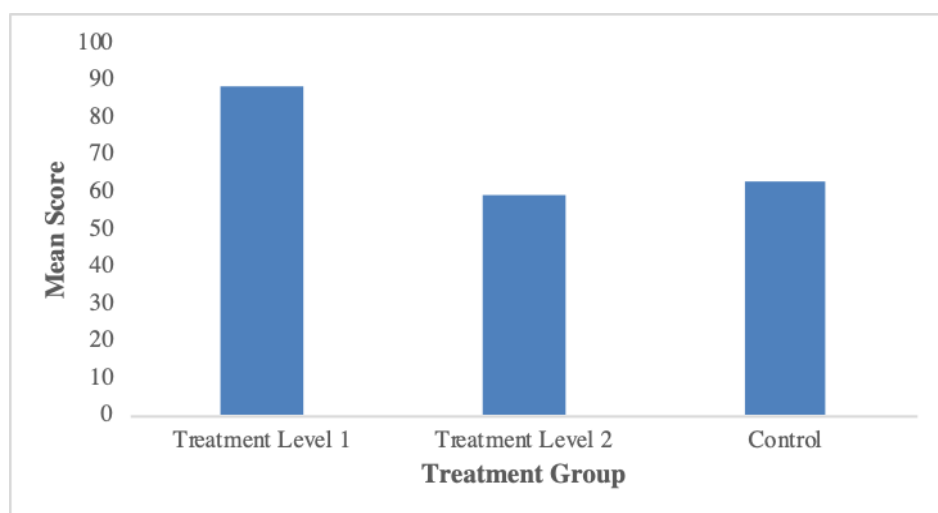


Figure 7 Average student perception of the motivational level of their learning experience

4.4 Findings on the second dimension

In this section, I present the analysis on the second dimension which aims to assess the intervention's impact on learners' attitudinal state, measured by the aggregation of three groups of items: L2 Classroom Linguistic Self-Confidence (items 18–22), L2 Classroom Anxiety (items 23–27), and Willingness to Communicate (items 28–32). I tested the effects of the variable treatment group (three levels: treatment level 1, treatment level 2, and control group) on attitudinal state variables at three different points in time (R1, R2, and R3). As in the previous analysis, I intended to use a split-plot ANOVA; however, the necessary conditions for a split-plot ANOVA analysis were not fully satisfied, as the Levene's test for variance homogeneity was significant for R1, at $F(2, 65) = 4.06$, $p = 0.02$, and R2 $F(2, 65) = 5.47$, $p = 0.006$. Therefore, I followed the same standards used to analyse the first dimension. Hence, data for R3 were analysed with a one-way ANOVA and data for R1 and R2 with a Kruskal-Wallis H test, the non-parametric alternative for ANOVA analysis for independent samples.

4.4.1 Second dimension effect in R1

The effects of the treatment in R1 were tested with a Kruskal-Wallis H test. The analysis results show that the treatment's effect on learners' attitudinal state variables in R1 was statistically significant, at $H(2) = 7.91$, $p = 0.02$. Next, in order to determine which differences between the groups were statistically significant, I conducted a series of Mann-Whitney U tests. In order to control the inflation of α -error possibility, I applied a Bonferroni correction of α -level ($\alpha = 0.05 / 3 = 0.017$). The results are presented in Table 19.

Table 19 Results of Mann-Whitney U tests

Compared groups	Mann-Whitney U statistics	<i>p</i> -value
Control versus treatment level 1	184.5	0.05*
Control versus treatment level 2	120	0.58
Treatment level 1 versus treatment level 2	168	0.01*

*Statistically significant results

Based on these results, I conclude that in R1, treatment level 1 significantly and negatively influenced learners' attitudinal state variables (mean rank = 23.27) when compared to the control group (sum of ranks = 31.97). More precisely, treatment level 1 significantly lowered learners' linguistic self-confidence and willingness to communicate and increased classroom anxiety. However, the effect of treatment level 2 was not statistically significant (mean rank = 17.94) when compared to the control group (mean rank = 16), which means that the treatment level 2 did not significantly influence attitudinal state variables. Finally, the students in treatment level 2 had significantly higher attitudinal state variable' scores (mean rank = 34.12) compared to those of students in treatment level 1 (mean rank = 22.80). This means that learners in treatment level 2 had, on average, higher linguistic self-confidence and willingness to communicate and lower classroom anxiety when compared to students in treatment level 1.

4.4.2 Second dimension effect in R2

The effect of treatment in R2 was tested with a Kruskal-Wallis H test. The analysis results show that the treatment's effect on learners' attitudinal state variables was not statistically significant, at $H(2) = 3.58$, $p = 0.17$. Hence, treatment levels 1 and 2 did not significantly influence learners' attitudinal state in R2.

4.4.3 Second dimension effect in R3

The treatment's effect in R3 was computed with a one-way ANOVA. Data on the dependent variable, learners' attitudinal state, were distributed normally, with skewness and kurtosis in between +/-1. The Levene's test for homogeneity of variance was not statistically significant, at $F(2, 65) = 0.67, p = 0.52$. Therefore, I conclude that the variance was homogenous across all groups, satisfying all assumptions for ANOVA analysis.

The analysis results show that the treatment effect on learners' attitudinal state variables in R3 was statistically significant, at $F(2, 65) = 23.38, p < 0.001$. To identify the differences between all three groups, I ran a series of post-hoc LSD tests. I also applied a Bonferroni correction of α -level to control the inflation of α -error. The results are presented in Table 20.

Table 20 Results LSD post-hoc tests

Compared groups	<i>p</i> -value
Control versus treatment level 1	> 0.001*
Control versus treatment level 2	0.69
Treatment level 1 versus treatment level 2	>0.001*

*Statistically significant results

I conclude that the treatment in R3 significantly influenced students' attitudinal state variables. Specifically, treatment level 1 significantly and positively influenced these variables ($M = 69.69, SD = 7.16$) when compared to the control group ($M = 55.44, SD = 9.04$). However, the effect of treatment level 2 was not statistically significant ($M = 56.59, SD = 9.51$) when compared to the control group, which means that treatment level 2 did not influence learners' attitudinal state variables in R3. Finally, in treatment

level 1, students' attitudinal state variables had significantly higher scores (higher linguistic self-confidence and willingness to communicate, lower classroom anxiety) compared treatment level 2 scores. Mean scores are presented in Figure 8.

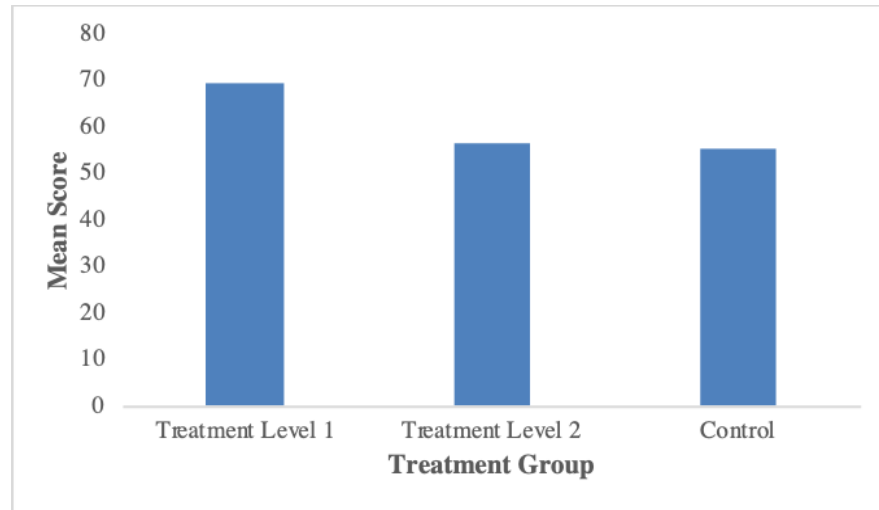


Figure 8 Average students' score on attitudinal state variables

4.5 The treatment's overall effects on the students' motivational levels

In this section, I analyse the intervention's overall effect on students' motivation—that is, the aggregation of the two dimension's scores (i.e., the students' perceptions of the motivational level of their learning experience and the intervention's impact on their attitudinal state) across the three levels: treatment level 1, treatment level 2, and the control group at R1, R2, and R3. This analysis is useful, as comparing the overall effect of the treatment between groups indicates differences in motivational levels as a whole, allowing me to confirm previous results and conduct a deeper discussion in the following chapters. Following my rational analysis, I aimed to compute a split-plot ANOVA; however, the Levene's test for homogeneity of variance was significant for R1, $F(2, 65) = 5.59, p = 0.006$, and R2 $F(2, 65) = 9.05, p < 0.001$, meaning that the variance was not homogenous or approximately equal across all groups. Since the necessary

conditions for a split-plot ANOVA analysis were not fully satisfied, I analysed data for R3 with a one-way ANOVA analysis and the data for R1 and R2 with a Kruskal-Wallis H test.

4.5.1 Overall treatment effect in R1

The overall effect of treatment in R1 was tested with a Kruskal-Wallis H test. The analysis results show that the treatment's effect on students' overall motivation levels in a classroom setting was not statistically significant, at $H(2) = 4.84$, $p = 0.09$. Therefore, I conclude that treatment levels 1 and 2 did not significantly affect students' overall motivation levels in a classroom setting in R1.

4.5.2 Overall treatment effect in R2

I tested the treatment's effect in R2 with a Kruskal-Wallis H test. The analysis results show that the treatment's effect on students' overall motivation in a classroom setting was not statistically significant, at $H(2) = 3.59$, $p = 0.17$. Therefore, I conclude that treatment levels 1 and 2 did not significantly affect students' overall motivation in a classroom setting in R2.

4.5.3 Overall treatment effect in R3

I tested the treatment's effect in R3 with one-way ANOVA. The data on the dependent variable, i.e., students' overall motivation levels in a classroom setting, were normally distributed, with skewness and kurtosis between ± 1 . The Levene's test for homogeneity of variance was not statistically significant, at $F(2, 65) = 2.11$, $p = 0.13$. Since the variance was homogenous across all groups, I conclude that all assumptions for ANOVA were satisfied. The one-way ANOVA tests show that the treatment's effect on students' overall

motivation in a classroom setting in R3 was statistically significant, at $F(2, 65) = 57.43$, $p < 0.001$. I further tested the differences between all three groups with a series of post-hoc LSD tests. However, as with previous LSD post-hoc tests, Bonferroni correction of α -level ($\alpha = 0.05/3 = 0.017$) was applied to control the inflation of a potential type I error. The results are presented in Table 21.

Table 21 Results LSD post-hoc tests

Compared groups	<i>p</i> -value
Control versus treatment level 1	> 0.001*
Control versus treatment level 2	0.68
Treatment level 1 versus treatment level 2	> 0.001*

*Statistically significant results

In conclusion, the results show that treatment level 1 significantly and positively influenced students' overall motivation levels ($M = 157.74$, $SD = 12.16$) when compared to the control group ($M = 118.44$, $SD = 18.89$). However, the effect of treatment level 2 was not statistically significant ($M = 116.06$, $SD = 18.43$) when compared to the control group, which means that treatment level 2 did not influence students' overall motivation in R3. Finally, the students in treatment level 1 had significantly higher overall motivation scores than those of students in treatment level 2. The results are presented in Figure 9.

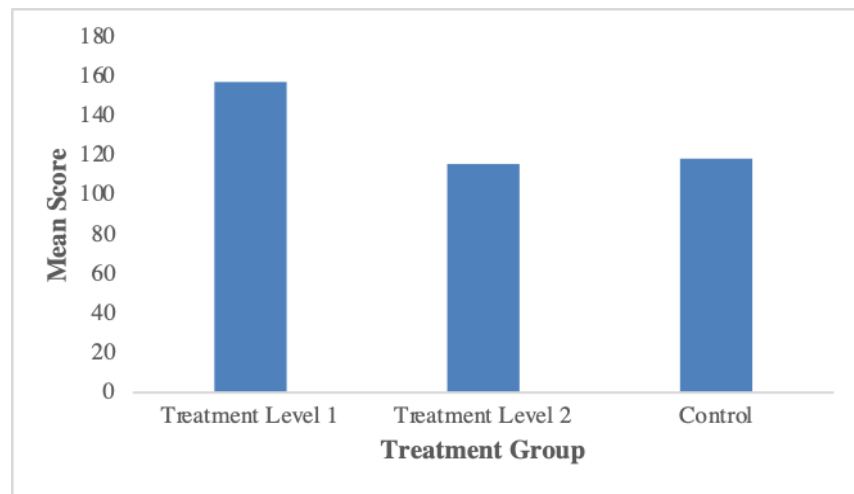


Figure 9 Students' average scores on overall motivation.

4.6 The effect of treatment level 1 on students' overall motivation across R1, R2, and R3

In this section, I compare the effects of treatment level 1 on students' overall motivation across the three data collection rounds. This comparison examines how students' motivation levels fluctuated over the eight weeks of intervention. Such information helps detect whether the intervention increased student motivation, as theorised by DMC theory (Muir and Dörnyei, 2013), assumed by the GDMC framework, and proposed by the current study. I tested student motivation using an ANOVA analysis for repeated measures.

As explained earlier, ANOVA is used to test the differences between several means. However, in a repeated-measures design, the same group of participants (in this case, treatment level 1) is tested in different experimental conditions. The first condition in this study is the progression of the intervention; the GDMC framework assumes that there is a direct and positive correlation between student motivation levels and the progress of the contest. The second condition is the passage of time (hence, testing repeatedly at several

points in time). However, testing the same group of participants violates a normal assumption of the ANOVA—the independence of groups (i.e., scores in different experimental conditions are independent)—so one more condition must be met before computing a repeated-measures ANOVA. Because scores are taken from the same participants but under different conditions, they are assumed to be related. Therefore, it is a condition of ANOVA to assume that variances between pairs of experimental conditions are approximately equal; this is known as the assumption of sphericity, or homogeneity of covariance (Kinnear and Gray, 2006). Mauchly's test is normally used to test for sphericity. This test checks the hypothesis that the level of dependence between conditions is equal (Field, 2013). Mauchly's test assumes that data violated the sphericity condition when $p\text{-value} < 0.05$. In my study, Mauchly's test shows that data has sphericity (i.e., homogeneity of covariance is assumed), as $\epsilon^9(2) = 0.758, p = 0.685$. The normality assumption was also met, as the data on the dependent variable were distributed normally, with skewness and kurtosis between ± 1 . Therefore, I conclude that the assumptions for repeated-measures ANOVA were satisfied.

The results of repeated-measures ANOVA show that in the treatment level 1 group, students' overall motivation changed positively from one point in time to another, as $F^{10}(1.66, 56.38) = 102.44, p < 0.001$. I further tested the differences between all three rounds with a series of post-hoc LSD tests. In order to control the inflation of α -error possibility, I applied a Bonferroni correction of α -level ($\alpha = 0.05 / 3 = 0.017$). The results are presented in Table 22.

⁹ (ϵ) here denotes Mauchly's test with its degree of freedom (df), followed by its significance p .

¹⁰ (F) here denotes the repeated-measures ANOVA test and its different degrees of freedom (df1, df2), followed by its significance p .

Table 22 Results LSD post-hoc tests

Compared groups	<i>p</i> -value
R1 versus R2	> 0.001*
R1 versus R3	> 0.001
R2 versus R3	> 0.001*

*Statistically significant results

The results suggest that students' overall motivation level in the treatment level 1 group significantly increased from the beginning of the intervention at R1 (M = 128.29, SD = 9.82) to the middle of the intervention at R2 (M = 143.94, SD = 9.06), as well as from R2 to the end of the intervention at R3 (M = 157.74, SD = 12.16). Mean scores are presented in Figure 10.

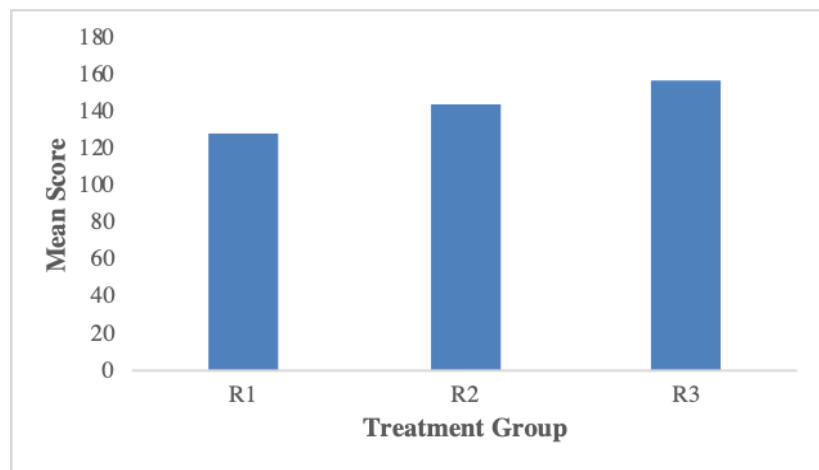


Figure 10 Average score of treatment level 1 group in different points in time

4.7 Self-plotted motivation-tracking graphs

I used motivation-tracking graphs to track students' motivation during the intervention, which allowed me to illustrate its shape and trajectory. Using Microsoft Excel, I calculated the mean of the dataset for each class (see Appendix N). Each data point in the chart represents the mean score of the class at a particular point of the intervention. I was

able to depict students' collective motivation during the intervention using line charts and illustrating the overall direction of the data using trendlines—a superimposed line that crosses each data point. A trendline is an analytical tool used to determine whether a set of points reveals a certain pattern and to predict future data points (Cadic, 2016). There are many types of trendlines, such as linear, polynomial, logarithmic, power, and exponential. Trendline equations tend to be used to find a trendline model that most accurately fits a set of data points, thus increasing trendline reliability. These formulas calculate

the R squared value [which] is always between 0 and 1 and represents the explained variation divided by the total variation. In essence, the closer to 1 the better as the model created by the trendline accurately describes 100% of all variation around the mean. (Taylor-Jackson, 2019, para. 7)

Using Excel, I calculated the R^2 value for each trendline model to determine its appropriateness and reliability for the current study's datasets. The results demonstrate that a polynomial trendline had the closest value to 1 in all classes of datasets (polynomial trendline R^2 values are shown on each class [G102, G103, G104 and G106] figure). Therefore, a polynomial trendline of the third degree, which is a curved line often used with fluctuating data (Zorrilla Salgador, 2018) has been added to demonstrate the overall trajectory of each class's motivational development. Polynomial trendlines have been used to illustrate the fluctuating nature of motivation in L2 motivation studies (Nitta and Asano, 2010) and in L2 learning research in general (Verspoor et al., 2008; Zheng, 2016).

4.7.1 Motivation-tracking graphs for treatment level 1 (classes G104 and G106)

Motivation lines for treatment level 1 classes (G104 and G106) exhibit general increasing patterns throughout the intervention (see Figures 11 and 12 respectively). Collective motivation in G106 started at 3.5 on the graph and increased to 4.8 at the end of the intervention. Similarly, the average motivation of students in G104 started at 3.6 and gradually climbed to 4.4. The trendlines of both classes predict a continued increase in students' motivation. The trendlines show that the future motivation score will pass the highest data point at the end of the intervention, thus continuing an upward trend, as hypothesised by the GDMC framework. In conclusion, the trendlines show that the GDMC intervention was successful in increasing students' motivation and creating a directed motivational current.

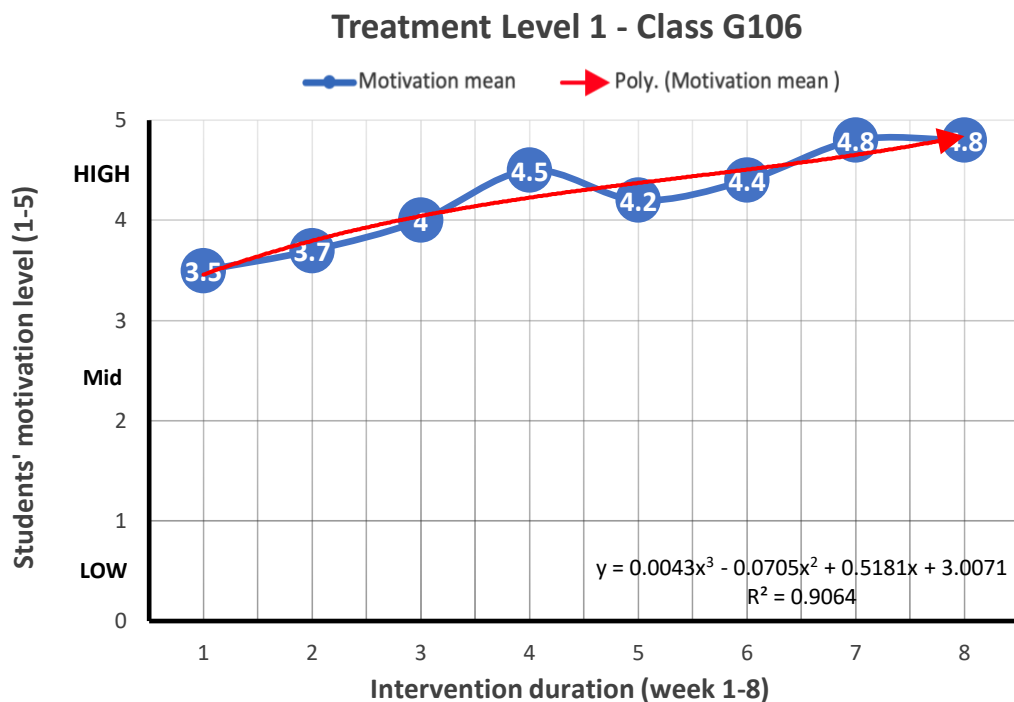


Figure 11 Motivation-tracking graph for treatment level 1 group (class G106)

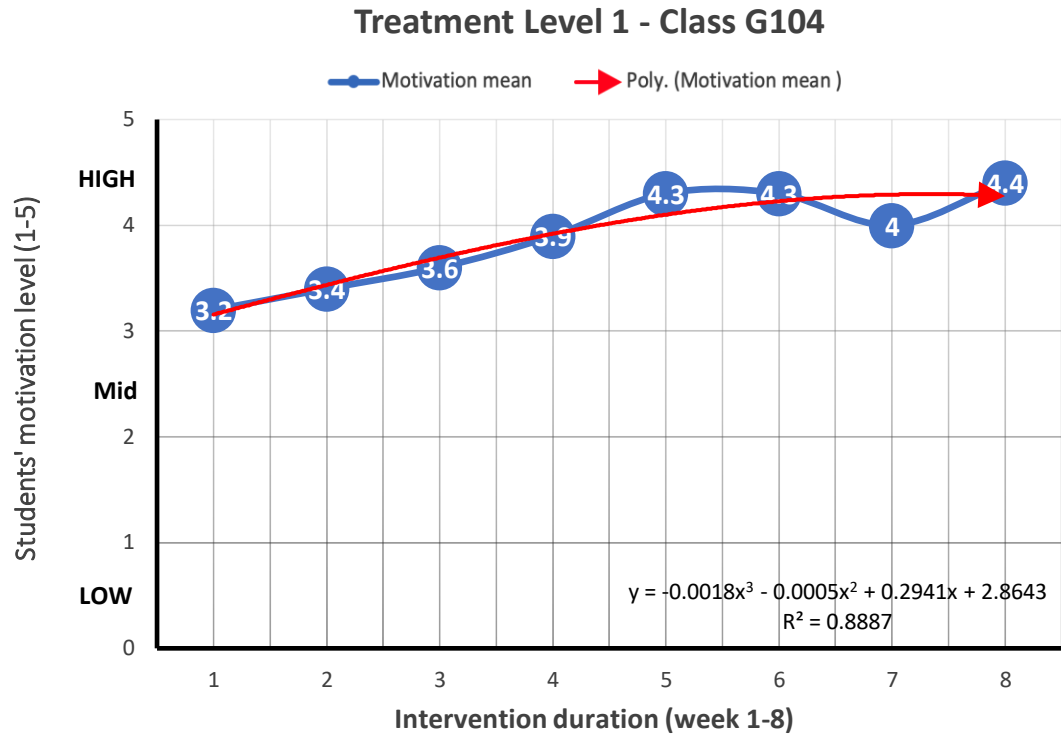


Figure 12 Motivation-tracking graph for treatment level 1 group (class G104)

4.7.2 Motivation-tracking graph for Treatment Level 2 (class G103)

As shown in Figure 13, the group motivation of students in treatment level 2 who only did the weekly activities as group work experienced significant fluctuations during the intervention. Although students' motivation increased slightly in the middle of the intervention, a descending pattern can be seen in the overall motivation mean line. Therefore, collaborative work alone was not able to create a growing directed motivational current. The trendline for the treatment level 2 group shows that, despite the increase in students' motivation in Week 6, class motivation plummeted in the following two weeks. This result suggests that the trajectory of the trendline would have continued to fall if the weekly activities had continued.

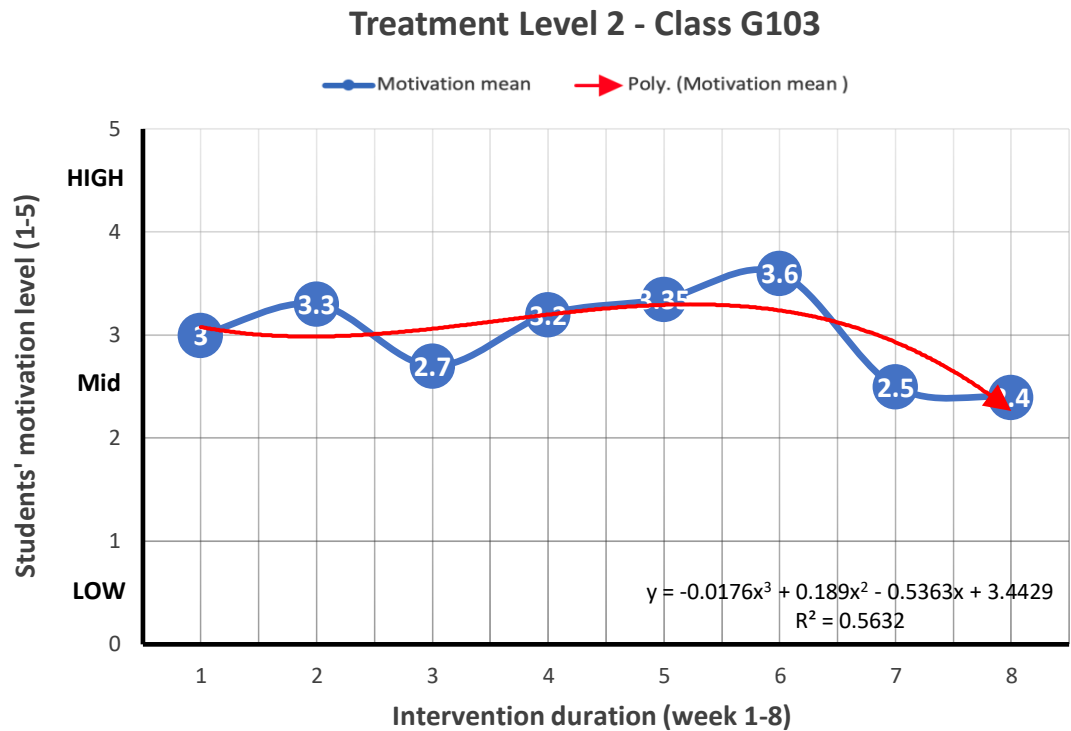


Figure 13 Motivation-tracking graph for treatment level 2 group (class G103)

4.7.3 Motivation-tracking graph for control group (class G102)

The group motivational pattern for class G102 (control group), who did not experience any motivational element, saw a gradual decrease during most weeks of the semester (see Figure 14). A downward pattern can be seen in the class mean scores, which was 3.4 at the beginning of the semester and had dropped to 2.4 by the eighth week. The direction of the trendline suggests that students' motivation level would have exhibited a further decline in the following weeks.

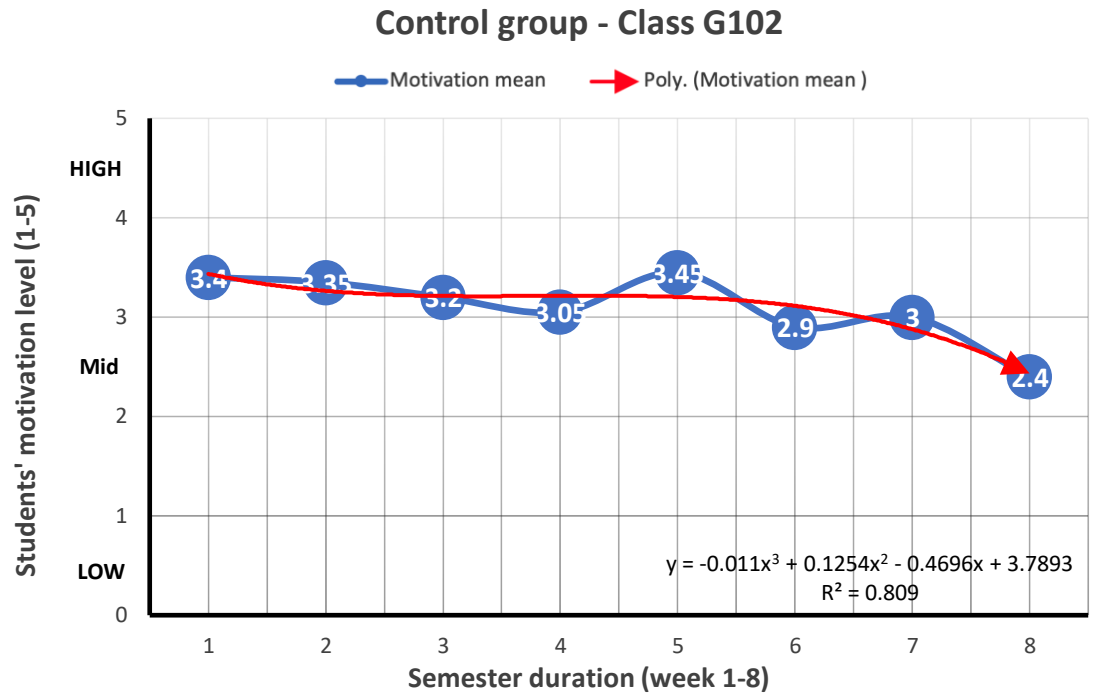


Figure 14 Motivation-tracking graph for the control group (class G102)

4.7.4 Motivation-tracking graphs conclusion

Motivation-tracking graphs have successfully depicted changes in students' motivation over time. The results of the motivation-tracking graphs compiled in this research show that the GDMC intervention increased students' motivation in treatment level 1, while students in treatment level 2 and the control groups experienced a clear decrease in their motivation as the semester progressed. Although all groups started with a medium to high score (3.0–3.5), there is a clear contrast in the degree of change between groups (see Table 23).

Table 23 Degree of motivational change in all groups

Group	Degree of change
Treatment level 1 (G106)	+ 1.3
Treatment level 1 (G104)	+ 1.2
Treatment level 2 (G103)	- 0.6
Control group (G102)	- 1.0

The positive effect of GDMCs was greater than the negative effect of its absence. However, it should be noted that, despite the treatment level 2 group and the control group having the same motivational mean score in Week 8 (2.4), the control group's motivation line fluctuated more moderately than of treatment level 2's, which experienced a significant drop towards the end of the observed period. Based on this steep decrease in students' motivation during the second half of the data collection period, the trendlines suggest that treatment level 2 group would experience a larger decline than of the control group in the following weeks. Overall, the findings from the motivation-tracking graphs corroborate the findings of the questionnaires. Arriving to the same results through two different data collection methods increases the validity of the findings (Cohen et al., 2017). Qualitative data analysis and findings are presented and discussed in the next chapter.

Chapter 5 Qualitative data analysis and findings

5.1 Introduction

In this chapter, I present the results of the qualitative data analysis. As discussed in the methodology chapter, the qualitative data was collected through focus group interviews (see Appendix K).

5.2 First stage of coding, inter-rater reliability and results overview

According to Saldaña (2013), qualitative data analysis requires two main coding cycles or stages. The purpose of the first stage of coding is to generate initial codes that ‘are not specific types of codes; they are “first impression” phrases derived from an open-ended process called Initial Coding’ (Saldaña, 2009, p. 9). The goal of the second stage is to re-examine codes developed in the first stage from a thematic, categorical, and/or conceptual perspective (see Figure 15).

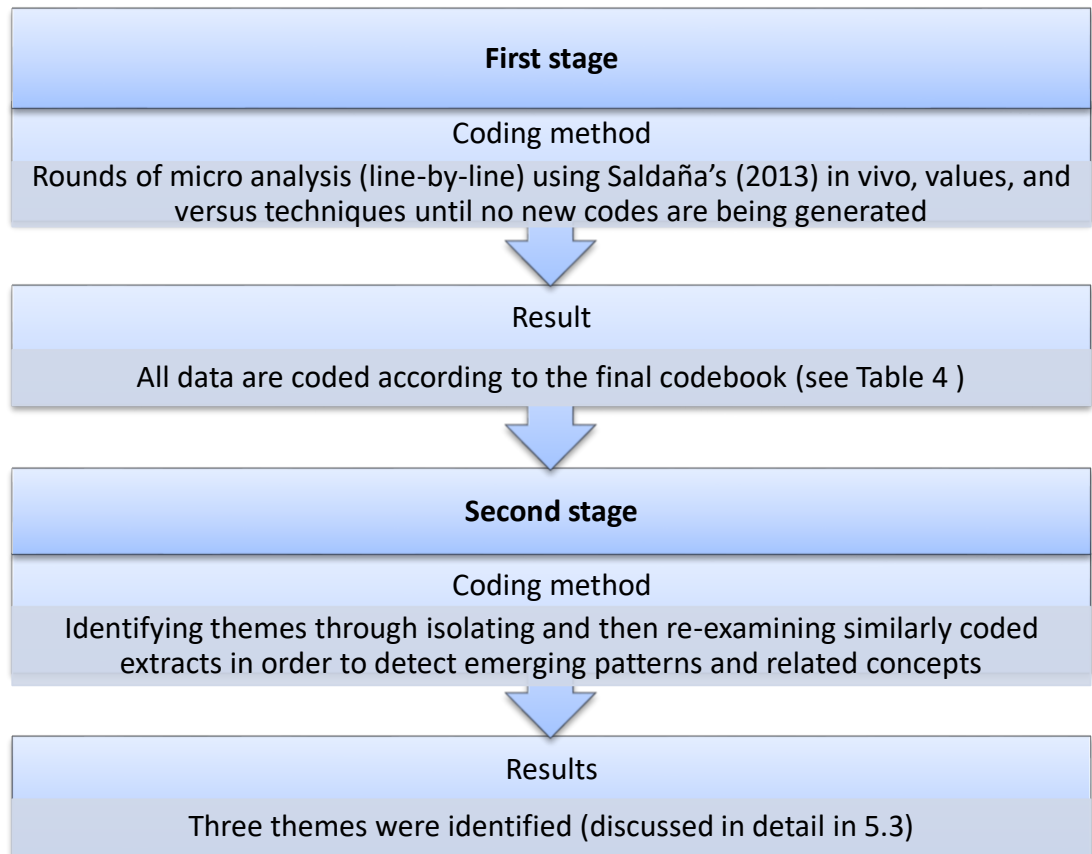


Figure 15 Stages of qualitative analysis in the current study

In the first stage, Saldaña (2013) recommends that the researcher should familiarise themselves with the data first before starting the coding process. I immersed myself in the data as I translated and transcribed all the focus group recordings myself, which is considered a good initial step for familiarising oneself with the data (Bazeley, 2013). Furthermore, I read the full transcriptions several times to further familiarise myself with the data and ensure the accuracy of the translation and transcription. This process allowed me to be extremely familiar with the data and to form initial impressions of meanings within the data (Braun and Clarke, 2006; Lapadat and Lindsay, 1999), especially while comparing the transcriptions with the audio recordings to ensure accuracy.

Saldaña (2013, p. 59) proposes 24 techniques that can be used in the first stage of coding. He suggests that association with the research question(s) should be the main criteria for choosing coding methods. For example, as in the current study, epistemological questions that tackle theories of knowing and strive to understand a phenomenon of interest usually ask exploratory questions geared towards investigating and revealing the perceptions, thought processes, and actions found in the data. Saldaña (2013) argues that techniques such as initial, versus, and in vivo coding are the most suitable methods to uncover and catalogue these epistemologies. The author recommends employing no more than two methods in the first stage of coding to avoid ‘muddying the analytic waters’ and mixing and matching techniques, as the coding methods often overlap in function (p. 60). After careful re-examination of my research questions and reviewing the final corpus, I employed three techniques to code the data: in vivo, versus, and values coding (Saldaña, 2013, p. 59). These techniques are used as ‘basic but focused filters for reviewing the corpus to build a foundation for future coding cycles’ (i.e., the second stage of coding; Saldaña, 2013, p. 263). In the current study, the first coding stage involved several rounds of coding that used the above-mentioned techniques, acting as filters for evaluating the data and guide the coding process. The purpose of in vivo coding is to honour participants’ voices by grounding the analysis from their perspectives (e.g. Saldaña, 2005). This is done by primarily using ‘the direct language of participants as codes rather than researcher-generated words and phrases’ (Saldaña, 2013, p. 61). By doing so, in vivo coding interprets data according to the actual meaning of the words and avoids over-interpretation (hence, it is also called ‘literal coding’). This technique is geared towards capturing ‘behaviors or processes which will explain to the analyst how the basic problem of the actors is resolved or processed’ (Strauss, 1987, p. 33) and help ‘to preserve participants’ meanings of their views and actions in the coding itself’ (Charmaz, 2006, p.

55). Moreover, since I was examining the impact of L2 motivational elements, which affect students' learning experiences and are manifested through emotion, I also used versus and values coding (labelled as 'affective methods' by Saldaña), which 'investigate subjective qualities of human experience (e.g., emotions, values, conflicts, judgments) by directly acknowledging and naming those experiences' (Saldaña, 2013, p. 105). Values coding assesses the importance students attribute to themselves, including their perceived abilities, actions, and feelings, and to the world around them, including their classmates, and the rules they have to follow. The main advantage of using values coding is its ability to reflect participants' feelings, needs, and wants, as these are intricately linked with their value systems (Saldaña, 2013). I also used versus coding, which enabled me to view motivational elements in dichotomous terms (i.e., motivational versus demotivational) and code them accordingly. Finally, it should be noted that while the objectivity and rigour of 'affective methods' have been debated by some researchers, Saldaña (2013, p. 105), argues that 'affective qualities are core motives for human action, reaction, and interaction and should not be discounted from our investigations of the human condition.'

As discussed earlier, the aim of the first stage of coding is to generate initial codes 'for all data as a "grand tour" overview' through multiple rounds of coding (Saldaña, 2013, p. 64). Since I was extremely familiar with the data and had already formed a first impression of the range of concepts within the corpus, I performed a micro analysis of the corpus by paying special attention to the dynamics of the data under the three filters mentioned earlier. However, certain necessary measures were taken during the coding process to assure the accuracy of the results. For example, to avoid bias from my own familiarity with the participants and the interview experience, participants were identified in the transcripts only with the letter 'P.' Pseudonyms were not used, preventing me from

identifying a particular student and connecting them to a specific transcript. Another reason for keeping participants' identities entirely anonymous during the coding process was that the unit of analysis chosen for the study was cluster random sampling, in which the unit of analysis is a group of individuals or, in this case, an intact class (see Chapter 3), which allows the researcher to measure the unit's motivational level and not be distracted with individual differences. This is not to say that students who showed disagreement were ignored: unlike quantitative analysis where outliers are removed, in qualitative analysis, participants who express extreme views or are consistent in their disagreement are examined more carefully. Furthermore, I coded excerpts of agreements and disagreements between participants separately. For example, if one participant stated that he enjoyed a particular aspect of the intervention and three other students agreed with him by saying 'yes,' 'true' or 'I agree,' I coded such an exchange as four separate references. This allowed me to compare the frequencies of references for each element in the intervention and evaluate their impacts on the learning experience. Determining an element's impact through frequencies requires the separation of elements as motivational or demotivational. Thus, during the coding process, I divided most of the codes into motivational or demotivational (guided by the versus coding technique).

I started coding four interviews using NVivo 12 to generate an initial codebook; these interviews were interviews numbers 2, 3, 6, and 11 (see Table 15). These specific interviews were chosen to equally cover both the treatment level 1 group and the treatment level 2 group. During this stage, Braun and Clarke (2006) recommend generating as many codes as possible; I generated 49 codes during initial coding (see Appendix O).

Before continuing the coding process, I assessed the reliability of my coding by conducting an inter-rater reliability test. I approached a colleague at Umm Al-Qura University who holds a PhD in software engineering to independently code one of the interviews. The independent coder was randomly assigned to code interview number 6. Then I ran a code comparison query in NVivo which resulted in a Kappa of 0.39, which is considered 'fair' (McHugh, 2012, p. 279). The main remark I received from the independent coder was that the codebook was too large and had many similar codes, allowing him to code a single extract into too many codes. I therefore revised the codes, merging conceptually similar codes and rewriting clear and more direct descriptions of the codes (see Appendix P). The independent coder and I proceeded to independently code two more interviews using the new codebook (interviews 2 and 9). I ran a code comparison query in NVivo which yielded a Kappa of 0.70 (see Table 24), which is considered 'substantial' (McHugh, 2012, p. 279).

Table 24 Inter-rater reliability Kappa results

Interview	Kappa results
Number 9 (24-10-2019 G103)	0.74
Number 2 (10-10-2019 G104)	0.67
Number 2 and Number 9 (10-10 G104) + (24-10 G103)	0.70

After resolving any discrepancies, the codes were deemed reliable, and I proceeded to code all interviews, including the ones coded using the first codebook (interviews 2, 3, 6, and 11). I did two rounds of coding to ensure that no new codes emerged from the data.

NVivo's 'Memos' and 'Annotations' tools were extensively used during the coding process to keep notes on interesting points, possible themes of causality, and to note quote-worthy extracts. According to (Saldaña, 2013):

Virtually every qualitative research methodologist agrees: whenever *anything* related to and significant about the coding or analysis of the data comes to mind, stop whatever you are doing and write a memo about it immediately. ... Future directions, unanswered questions, frustrations with the analysis, insightful connections, and anything about the researched and the researcher are acceptable content for memos (p. 42)

The aim of the notes and memos was not to summarise the data but to allow me to reflect, link, and develop my insights as the analysis progresses (see Appendix Q). Quote-worthy extracts were coded as such when I perceived them as passages that are 'strikingly' interesting and may be 'so provocative that they become part of the title, organizational framework, or through-line of the report.' (Saldaña, 2013, p. 20) Northcutt and McCoy (2004, as cited in Saldaña, 2013, p. 221) notes that 'a participant will sometimes unknowingly do the analytic work for the researcher when participant quotes in interview transcripts that lend themselves as Axial Codes are found.' The first stage of coding resulted in 32 codes (see Table 25).

Table 25 Codes from the first stage of coding

Category	Code name	Description	Number of interviews	Number of times referenced
Positive motivational elements	Activity as a motivational element	Viewing the activities, in general (without giving any specifics), to have positive effect on their motivation.	11	138
(This node was created as parent node to facilitate the versus coding	Break the routine	When the students say that the activities or the contest provided change from the routine of regular classes. This is seen as	11	80

method and has 0 references)		motivational element.		
	Collaborative teamwork (positive)	Mentioned as a motivational element. This includes collaborative work for treatment level 2 group and teamwork for treatment level 1 group.	10	43
	Competition	When students view the concept of competition to affect their motivation positively.	11	78
	Create creativity	When students state that the activities or the contest help them be more creative or allow them to express their creativity.	8	19
	Enjoyment	When students state that they are enjoying doing the activities or participating in the contest (be careful of the utterances' true meaning, as the word 'excitement' often mean 'enjoyment').	10	79
	Freedom in class	Means that they are free to express themselves in the class and not only follow the textbook. Also, when the students like that they can make mistakes without consequences (academic or otherwise) or say that they like that the activity is optional. Relates to the element of playfulness.	9	28
	Increase interaction and lessen social anxiety	When the students say that the activities allow them to interact with each other and benefit from each other's linguistic knowledge, which lessens social	11	92

		anxiety.		
	Pure interest in learning English	When students say that they are externally motivated because they like learning English or languages in general.	8	18
	The contest (positive)	When students view the concept of the contest as motivational or express interest in expanding the contest to make it bigger or longer.	11	186
	Topics in classes	When students say that they like discussing new and interesting topics (mainly outside the textbook). Or when they express dislike towards certain topics in their regular classes.	6	24
	Using the language	When students say that the activities would help them in using English in real life or view the activities as motivational when they are forced to speak in English only (mainly because the of the activities' rules, which they have to follow in order to win).	8	19
Negative motivational elements (This node was created as parent node to facilitate the versus coding method and has 0 references)	Activity as a demotivational element	Viewing the activities, in general (without giving any specifics), to have negative effect on their motivation.	9	22
	Boredom	Self-explanatory. This includes references to long classes (a 4-hour class that they take once a week).	11	73
	Collaborative teamwork (negative)	Mentioned as a demotivational element. This includes collaborative work for treatment level 2 group and teamwork for treatment level 1	3	8

		group.		
	Homework	Any homework and the online platform which is an additional weekly online language exercises that they have to do on their own at home.	5	27
	Language exercises	In-class excessive language exercises from the textbook as a way to learn the language.	1	4
	Learning style (lecturing)	When students mention their regular classes or traditional learning style affect their motivation negatively; mainly 'passive learning' (meaning when the class is not interactive; students only listen the teacher and do not get a chance to speak or express themselves).	11	67
	Losing	When they say that losing weekly activities or the contest demotivates them.	6	18
	Miscellaneous demotivational elements	Any demotivational elements that seem to be irrelative to the learning process (e.g. classroom condition, administrative decisions, personal non-academic preferences, etc.)	10	30
	No reward	When they view the activities as a waste of time and effort because they are not rewarded for doing them. Reward can be grades, prizes, or personal satisfaction (good feelings, e.g. from merely winning).	1	1
	Social anxiety	Self-explanatory	4	11

	The contest (negative)	When they mainly say they are not interested in the concept of the contest for any reason.	2	2
	Too many activities	When students warn that doing anything too much might become routine in itself, including the activities. When they view the novelty of the activities or the contest as an advantage.	8	42
Independent top tier nodes	Educational value	When the students state that the contest, including the activities, has educational value by: <ul style="list-style-type: none"> - Allowing them to recognise their true level of English - Improving their English through learning new grammar, vocab, etc. - Help them improve their grades and exams. 	11	146
	Games as a motivational element	When the students say that some game element motivates them, such as the leaderboard and points.	8	40
	Lost in the activity	When students say that they are into the activity so much so that they forget about any demotivating factors present or mention that they feel that time passes quickly and they are not bored.	10	37
	Reward	When the concept of reward is viewed as positive, negative, or neutral. Utterances are coded as reward when they are generally mentioned as	11	118

		something students get in return for their effort. This could be a tangible reward (e.g. money), any notion of abstract reward, the contest's prize, or the feeling of winning.		
	Teacher personality	When they link their motivation to teacher personality.	6	7
	Uninterested	When they say that they are uninterested in the activities or the contest for any reason.	5	14

Four major codes dominated the first stage coding process: positive motivational elements, negative motivational elements, the concept of reward, and educational value (see Figure 16). As discussed earlier, the current study focused on students' L2 motivation rather than measuring their actual learning. Therefore, I briefly discuss the educational value code result in the following paragraph before continuing to analyse the remaining codes in more detail in the rest of the chapter.

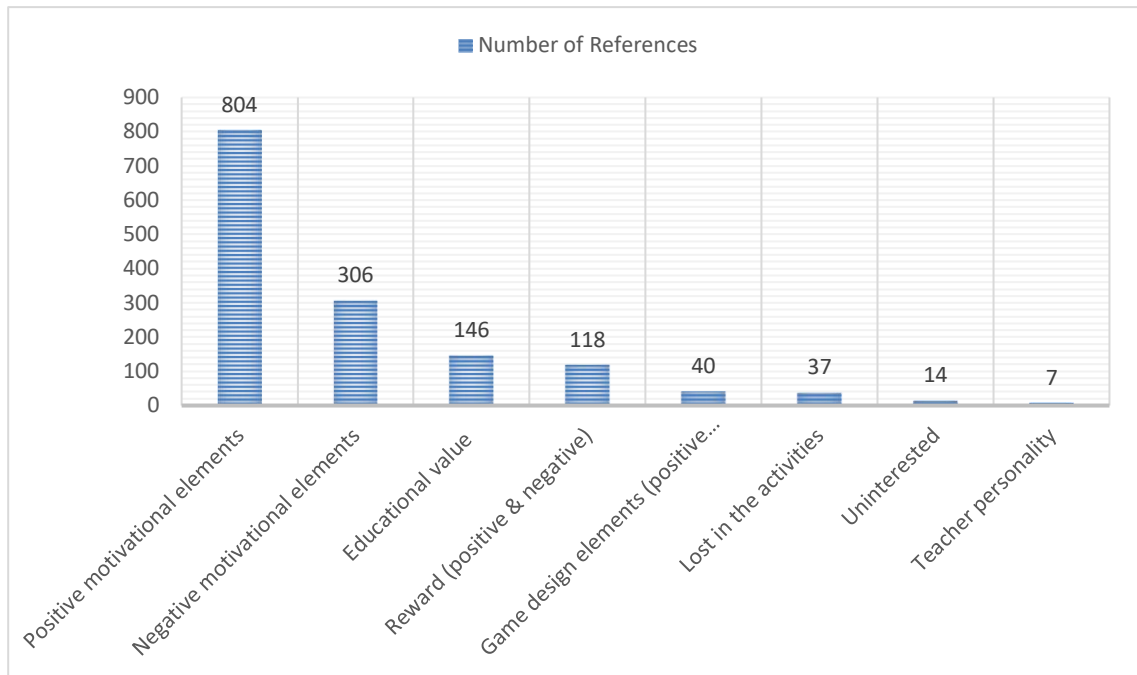


Figure 16 Overview of the highest referenced parent codes in the first stage of coding

An overview examination of the data in the first stage shows that the GDMC intervention had a positive effect on students' motivation and learning experience. This is apparent as data were coded as 'educational value' 146 times (see examples in Table 26). Educational value means that students generally stated that they learned new information, improved a language skill, and/or had a chance to practice using English.

Table 26 Examples of extracts coded as 'educational value'

Element	Source	Example
Educational value	Treatment level 1	P: The contest is nice; it's interactive and it contains a lot of information, we learn new words.
		P: No, it has an educational value. For example, in the story activity, you need to be innovative and creative, So I believe it has a high educational value. P: It has value, the first activity helps me improve my writing and would benefit me in the writing exam. I know how to write, and I learned more from my classmates; Majid [pseudonym] taught me one thing; Saud [pseudonym] taught me another point. So, I learn. And the listening activity, the video, I feel that it's very important. Because I learned how to write the important points When you take notes and not write all information that we heard in the video, you must spot the important points.
	Treatment level 2	P: Honestly, I feel that it has no drawbacks, because it, e.g., it helps students to learn new vocabulary, Like in the 21 Questions game. A lot of students learned many new vocabularies they didn't know before, which motivates them to look up and learn these new vocabularies at home and also learn many more. So, I don't think it has any drawbacks.

5.3 Second stage coding: Thematic analysis

The purpose of the second stage of coding is to re-examine the codes created in the first stage in order to establish themes, categories, and/or concepts (Saldaña, 2013). In the second stage of coding, I used two methods. First, I employed pattern coding, which aims to identify patterns in the data through pulling together similarly coded extracts and then re-examining them separately. This process not only provides a more accurate categorisation of the data, it also helps attribute meaning to those categories (Saldaña, 2013). Pattern coding resulted in four categories and several subcategories (see Figure 17) with motivational elements, demotivational elements, and educational value as the most frequently referenced main categories (see Table 27).

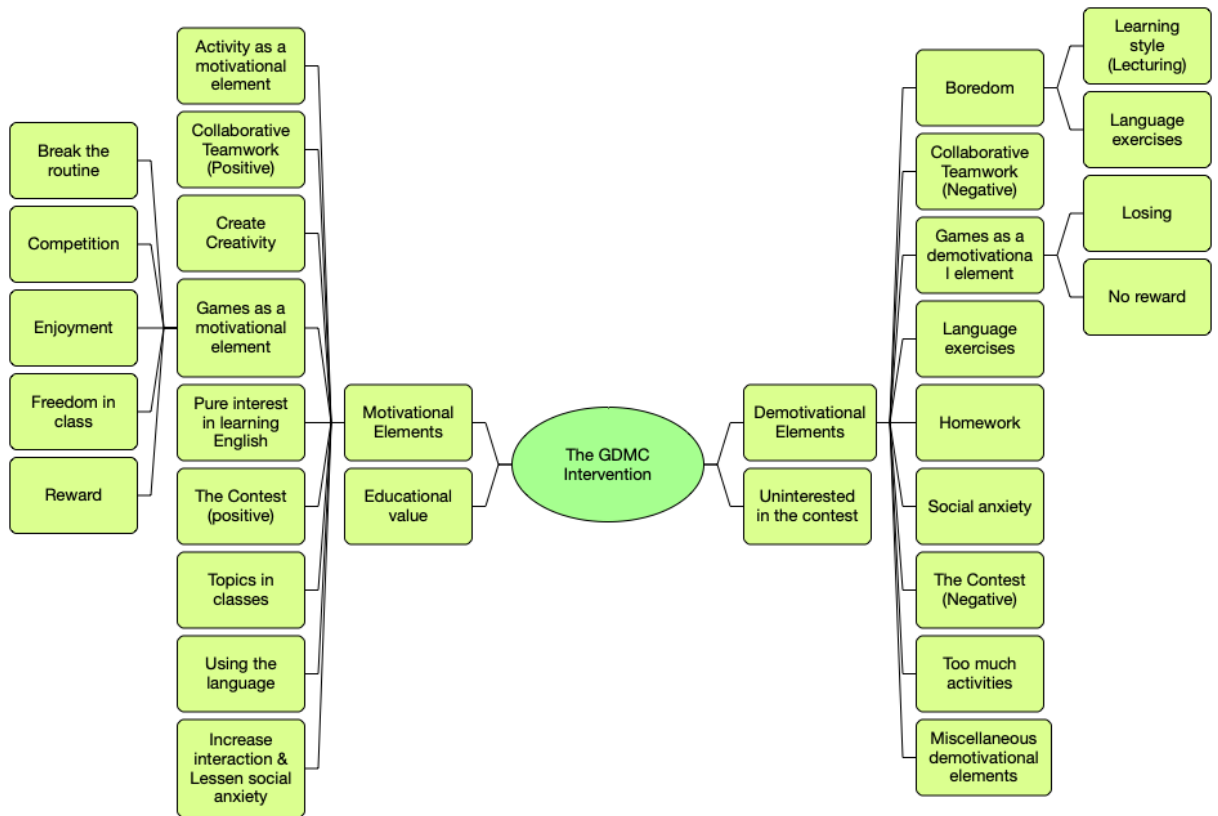


Figure 17 The result of the pattern coding in the second stage of coding

Table 27 Most frequently referenced categories in pattern coding

Categories	Aggregated references
Motivational elements	962
Demotivational elements	306
Educational value	146
Uninterested in the contest (neutral)	14

Within the four top categories, motivational elements and demotivational elements had several subcategories (see Table 28).

Table 28 Most frequently referenced subcategories in pattern coding

Categories	Subcategories	References
Motivational elements	Increase interaction and reduced social anxiety	92
	Break the routine	80
	Enjoyment	79
	Competition	78
Demotivational elements	Boredom	73
	Learning style	67
	Too many activities	42

Second, axial coding was used to investigate the relationships between the developed categories and concepts (Corbin and Strauss, 2014). In axial coding, categories are organised by identifying a major category, placing it at the centre, and then developing a network of relationships around it (Jenner et al., 2004). Axial coding was done by selecting and grouping related codes in a category and discarding others. The rationale for the selection process was the relevancy of the coding to the research question. During axial coding, I also sought to include notes taken during the interviews and the first stage of coding (documented through NVivo's 'Memos' and 'Annotations' tools) and the participants' passages that had been highlighted as quote-worthy extracts in order to develop themes.

The axial coding resulted in three themes and several subthemes. The first theme was the structured design of motivation. This theme was comprised of the design elements that gave the contest its structure of a chain of activities that that can be won or lost and led

to a prize at the end. The second theme is playful learning experience, which can be thought of as the result of the interactions between the elements in the structured design of motivation theme. The third theme was context sensitivity, which refers to considering context-specific aspects before attempting to apply an intervention model built on DMC theory. In other words, it reflects students' opinions on what aspects to focus on and what aspects to avoid when attempting to incorporate the GDMC intervention. In the remainder of this section, I will describe these three themes in detail.

5.3.1 Theme 1: Structured design of motivation

One theme that emerged from the data is that attempting to increase learners' L2 motivation should be a structured process (an L2 classroom contest in the case of the GDMC intervention). The analysis showed that structuring the intervention as a contest that divides students into teams who follow rules to reach proximal goals directly resulted in creating a 'playful experience' (described in Section 5.4.2) during the intervention. Three subthemes were found to have the most impact on providing a GDMC with its structure as a contest: challenging proximal goals, game design elements, and team identity (see Figure 18).

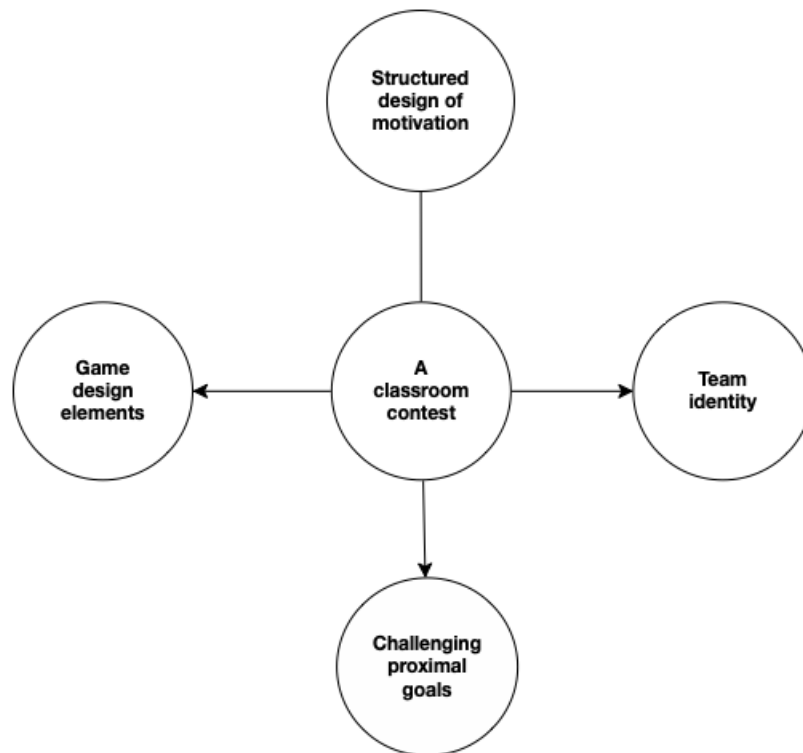


Figure 18 Axial illustration of theme 1: Structured design of motivation

5.3.1.1 The contest

Most students reported that participating in the contest had a positive effect on their motivation (see Table 29). For example, when asked if they preferred to do the activities without framing them in a contest with teams and winners and losers, the students overwhelmingly stated that such activities would not have motivated them.

Table 29 Examples of extracts coded as 'positive effect of the contest'

Element	Source	Example ¹¹
Positive effect of the contest	Treatment level 2	<p><i>Students in treatment level 2 only did the activities and when I showed them the contest website of treatment level 1 groups they made the following statements.</i></p> <p>P: If they were part of a contest [the weekly activities], that would make them more excited and prepare for it. Also, it would help you with the curriculum.</p> <p>P: The contest may make you prepare in advance for the activity. For example, in the vocabulary activity, students may prepare themselves with a variety of vocabularies before they come to the activity. This will help the students in two ways, in learning the words' meanings and in winning the activity.</p>
	Treatment level 1	<p>I: I'm doing the same activities every week with another class, but without framing them as a contest. In other words, we are doing the exact same activities without teams, weekly winners, or prize at the end of the semester. How do you think each method would impact your motivation?</p> <p>P: I think this other class wouldn't care about the activities; they would be indifferent.</p> <p>I: What if we did the same activities every week, but we did not frame it as a contest. So, there would be no teams, winners, or contests with rules?</p> <p>P: You mean just hanging out and chatting?</p> <p>P: It would be like doing homework.</p>

¹¹ I = interviewer, P = participant, Ps = Three or more participants

		<p>I: We would still be doing the same exact activities, but not as a part of a contest.</p> <p>P: I don't feel . . . It's better this way. The way it is really motivates you.</p> <p>I: Why?</p> <p>P: It makes it enjoyable for me. It's the idea of competing. All games are based on competition at their roots. I feel that the notion of competition makes it more enjoyable—I feel if it was regular it would be a bit boring.</p>
--	--	--

Within the parent code of 'positive motivational elements,' the contest was positively referenced 186 times across all interviews, making it the most frequently referenced code in the data. However, despite such frequent referencing, these instances did not provide specific details explaining why the contest was perceived to have such an impact. Positive references about the contest provided an overall indication of the contest's motivational impact but were too general for further analysis. Such details had to be drawn from other codes within the 'positive motivational elements' category. Further analysis revealed three core factors that provided the contest with its motivational structure, which I discuss in the following sections.

5.3.1.2 Promoting team identity

Two design elements were found to foster team identity within the contest: fixed team members and control over teams' names. As explained in the contest procedures (see Table 7), students were excited to name their team and discussed the matter enthusiastically to choose what they refer to as a 'cool' name. Allowing the students to choose their team's name seemed to promote a strong team identity and create

competition. Immediately after the teams’ names were chosen and written on the classroom’s whiteboard, students started to challenge each other with phrases such as ‘You’re going down,’ and ‘I advise you to give up—there is no chance you can beat us.’

Students in the treatment level 1 group worked in fixed teams (i.e., with the same group of students every week), while students in the treatment level 2 group worked in different randomly formed groups every week. The majority of students in the treatment level 1 group stated that participating in the contests with the same teammates every week increased interaction between team members and thus reduced social anxiety and created competition between teams (see Table 30). This conclusion was not apparent in the treatment level 2 group.

Table 30 Examples of fixed teams’ effect on motivation

Element	Source	Example
Fixed teams’ effect on motivation	Treatment level 1	<p>I: Okay, can you describe how the contest impacted your motivation to learn English in particular?</p> <p>P: Maybe because it is like a competition to see who remains at the end—you want to be the last team standing, you want to win.</p> <p>I: Guys, please no need to raise your hand before you speak. This is a friendly discussion. If you want to say anything, just go ahead.</p> <p>P: Okay, maybe because the students get a full chance to participate, to speak and listen, and not just listen like in regular classes. It is motivational in my opinion.</p> <p>P: Maybe it’s the spirit of teamwork, because it’s a team helping each other—maybe this is why it’s motivational.</p> <p>P: It [working with different group every activity] won’t give us the same level of motivation because everyone within their team wants to do their best to help their team [cross talk].</p>

		<p>P: And sometimes, being in a team forces you to participate.</p> <p>I: It is still group work—you will still be working in groups, doing the same exact activities, but members will be randomly selected each week.</p> <p>P: It's better to work in a team; it motivates you; it makes you feel . . . [cross talk].</p> <p>P: It's better to work with the same individuals and compete against the same teams [cross talk].</p> <p>P: Yeah, when you are in a team and you compete against the same teams in the next activity you feel like</p> <p>I: So, it's better to be . . . [cross talk].</p> <p>P: Fixed teams.</p> <p>P: Fixed.</p> <hr/> <p>P: I think there won't be the same level of excitement or motivation [if team members changed every week]—if we win, we win but if we lose it's not a problem [cross talk].</p> <p>P: No pressure [cross talk].</p> <p>P: But when you know that you are playing for your team's name, you would be extremely motivated, because you are playing for your whole team to win. It is not just you, where you can say, 'If I don't win, there is no problem.'</p>
--	--	--

5.3.1.3 Challenging proximal goals

There are two types of goals in a DMC that involve a string of proximal goals that lead to student's personal end goal (e.g., passing exams with high grades) or their future vision (e.g., being a doctor). DMC theory hypothesises that a student's motivation to reach a personal end goal or a positive future vision of themselves should gradually increase their motivation to accomplish the proximal goals, one by one, until the end goal is reached or

the future vision is materialised. Similarly, in the GDMC intervention, reaching the end goal of winning the contest and receiving the prize should have motivated the students to accomplish the proximal goals represented by winning the weekly activities and collecting points. Because the contest's prize represents the end goal in the intervention (and subsequently the contest), it is an important part of the contest's structure as it marked its conclusion. However, although the students did experience a motivational current that increased over the span of the contest, the majority did not consider winning the contest or the prize at the end of the contest as major motivating elements (see Table 31); rather, most students claimed that they were more motivated by winning weekly activities. In other words, the student stated that the experience of accomplishing the proximal goals by winning them was more motivating than reaching the future end goal (see Tables 32 and 33).

Table 31 Examples that indicate an increasing motivational current

Element	Source	Example
Increasing motivation over time (observable outcome)	Treatment level 1	P: I don't like formal classes, On the contrary, I like the class and the teacher to be informal. As he told you, the drop in the second week was due to my absence. There is no specific reason why my motivation kept increasing over the last three weeks, but I would say that on the third week I was really excited because of the activity—it made me want to learn more. The speech on the video was a little bit fast for me; this made me want to learn more in order to understand the words and write them down more quickly. And for the last week I liked it because the class wasn't long and I could focus.
		P: Because, as I told you, the first week was the story activity and I didn't participate much. I started to participate more and following week and I'm participating more and more each week, so I'm seeing a difference.

		<p>I: But what exactly prompted this change?</p> <p>P: You mean why I started to like group work more now?</p> <p>I: Yes.</p> <p>P: The activities themselves were the reason behind this change. The story was a bit boring because I couldn't participate, but the activities after that grabbed my attention more until this week's activity which, for me, is the best one, as I mentioned earlier.</p>
		<p>P: At the beginning, although I wasn't used to such long English classes I marked my motivation just below high. And, after the second week, I started getting used to the classes and got motivated to learn more because I started seeing the effect on my language level.</p>
		<p>P: The first week made all the difference. When we won on the first week, I said to myself, 'We have to keep advancing and we don't give the other teams a chance.'</p>

Table 32 Examples of the effect of the end goal (the contest prize)

Element	Source	Example
End goal (the contest prize)	Treatment level 1	<p>I: Which one do you think is more important to you personally—winning the weekly activity or winning the final prize at the end of the contest?</p> <p>P: Honestly, I focus on winning the weekly activity.</p> <p>P: We are not paying much attention to the final prize at present.</p> <p>I: What if the final prize has materialistic value?</p> <p>P: No, it's not about that.</p> <p>P: Honestly, I am thinking about winning more than the prize [cross talk].</p> <p>P: Yes.</p> <p>I: What do you think?</p>

		<p>P: Me personally, I don't think about the prize that much. Even if it was something valuable like iPhone X or something, I wouldn't care about it as much as winning.</p> <p>P: [jokingly] If it was an iPhone X I would be very interested [all laughing].</p>
		<p>I: How about the prize?</p> <p>P: The prize is not the goal [cross talk].</p> <p>P: It's nice, but the competition is also nice.</p> <p>P: The prize is only a mental motivator to raise morale.</p> <p>I: Mohammad [pseudonym], what do you think?</p> <p>P: I'm with them.</p> <p>P: The prize is not important [cross talk].</p>

Table 33 Examples of the effect of challenging proximal goals (the activities)

Element	Source	Example
Proximal goals (the activities)	Treatment level 1	<p>P: If you are not motivated while you are writing a story, you will write anything. But now you want to win, you will be creative in your writing. You will be more creative.</p>
		<p>I: Okay, let me put the question in another way. So, what if we had the same activities every week, but without the contest, how do you feel about that?</p>
		<p>P: Of course we will be much less motivated.</p>
		<p>P: Of course, it will be less.</p>
		<p>P: If there are no winners, what's the point?</p>
		<p>P: It is human nature—if there is something that a person wants to win at the end they will be motivated to work harder.</p>
		<p>P: There must be a goal.</p>
		<p>I: You feel that there must be a goal to achieve?</p>
		<p>P: Yes, of course.</p>

		P: You have to think about winning every week so that you can get the prize, but you cannot think of the prize, which is in the future all the time.
--	--	--

In addition to their motivational power, qualitative data indicate that the weekly activities acted as regular checkpoints that continuously provided the students with affirmative feedback on their learning progress (see Table 34).

Table 34 Examples showing activities working as regular checkpoints that provided the students with affirmative feedback

Element	Source: Treatment level 1	Example
Activities functioning as regular checkpoints that provided the students with affirmative feedback on their learning	Class G106 interview on 23/10/2019	P1: Honestly, it [the activity] made me think about how well I know the vocabulary [in the textbook]; I need to revise. P2: I answered a few of the questions. I also need to do some light revision. P3: I felt that I am familiar with a lot of the vocabulary that I've heard today, but I didn't know their meanings, so I need to go back and look them up. Yes, I know the words, but I don't know how to explain their meanings, so I have to go back and revise them.
	Class G104 interview on 22/10/2019	P1: I felt that students who didn't win would go back and revise more or study more so that hopefully next time they can win [cross talk]. P2: There are no losers here. P3: You already won when you learned [cross talk]. P4: You got benefits out of this experience.

5.3.1.4 Game design elements

In the intervention, points and leaderboards were used as game design elements to connect the activities together and form the contest. Although the students showed interest in collecting points and expressed their desire to see their team's name at the top of the leaderboard, the data analysis revealed that these elements did not impact students' motivation directly, but rather through their ability to create competition. The majority of students were of the opinion that although the game design elements did not affect their motivation negatively, they were much more motivated by what collecting points and climbing the leaderboard represent— students' desire to win the activity each week. Overall, points and leaderboards were successful in connecting the weekly activities to form a contest but were not considered a direct source of motivation by the students (see Tables 35 and 36).

Table 35 Examples of the effect of the game design elements (points)

Element	Source	Example
Game design elements (points)	Treatment level 1	P: In my opinion, competition is a good thing, but without keeping scores, what's the point? We win one week; another team wins the next week—it makes no difference. What you would have without points—there is no one winner; the contest is still going. Even teams with the zero points still have a chance. This semester is not over; the contest still continues.
		P: If it is money, for example, and it must be a large amount, of course everyone will think about it. But currently, most students think about the competition in class more than the prize. They think about collecting points; they don't care if there is a prize or not.

		<p>P: For example, in this week’s activity if we speak in Arabic, we will lose points. So, I pledged not to talk in Arabic at all. So, we can win and collect more points.</p>
		<p>P: Actually, I felt that there is something that we want to reach—we want to win. It’s not acceptable, from my point of view, that all teams got at least 1 point and we are at 0 points—no, we have to go forward as well. We have to contribute something at least.</p>

Table 36 Examples of the effect of the game design elements (leaderboard)

Element	Source	Example
Game design elements (leaderboard)	Treatment level 1	<p>P: I suggest that we don’t have only one winning team each week, but we award points to all teams. For example, the best team would get three points, the second best two points and some teams no points. So, each team has a chance and doesn’t get behind on the leaderboard.</p>
		<p>P: I was feeling competitive. We must advance—lagging behind is not acceptable. When one team wins and they are above us on the leaderboard, I feel that we must catch up with them so that we can hopefully win next week, which will guarantee that we can win the contest.</p>
		<p>I: Why are you only concerned about winning and nothing else? P: Because I want my team to win—I don’t want to be the reason they lose so they don't blame me. P: You want your name to be registered on the leaderboard—it is something to be proud about.</p>

5.3.2 Theme 2: Playful learning experience

The GDMC framework incorporated game design elements (namely points and a leaderboard) so that students would view the intervention as a game and be motivated to

perform well in the proximal goals and compete to win the contest. It seems that the dynamic interaction between team identity, challenging proximal goals and game design elements created a gaming experience in the learning context which raised students' L2 motivation, as assumed in Chapter 2. In other words, and as discussed in the previous section, the evidence suggests that the mere presence of elements such points and leaderboards, challenging short-term goals and collaborative work did not function as a direct source of motivation but rather as structural elements that lead to what I call a 'playful learning experience.' Therefore, to investigate the source of motivation in the current intervention, I widened the scope of analysis to focus on the students' description of their experiences instead of their perspectives on the employed motivational elements (e.g., points, leaderboards, goals, reward). Based on the students' described experiences, it seems they had a motivational learning experience with particular characteristics. A closer examination of the data revealed that such experience is the result of an observable dynamic interaction between the structural elements (described in theme 1) within the intervention.

In the next section, I review three aspects that are perceived to constitute the theme of playful learning experience: freedom in class, increased interaction and decreased social anxiety, and enjoyment and competition (see Figure 19). The students reported these aspects to have the most effect on their learning experience and thus their motivation. I will also briefly discuss how these aspects are closely linked with gamification theory.

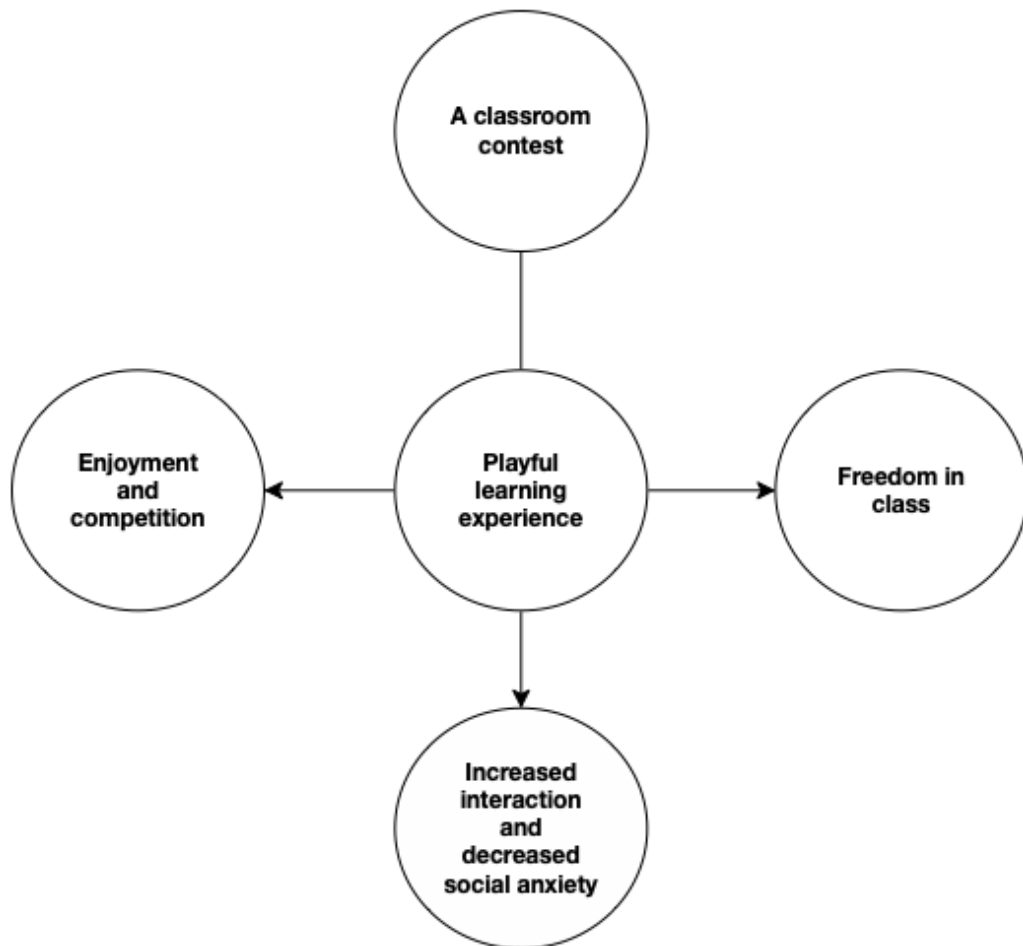


Figure 19 Axial illustration of theme 2: Characteristics of a playful learning experience

5.3.2.1 Freedom in class

It seems that the contest was perceived by the students as space where they could experiment, be creative, and make mistakes, all without consequences. This conclusion was derived from comparing students' opinions on the contest and how they sharply contrasted with their views regarding their regular classes. For example, most students explicitly stated that they do not want the activities to be graded. Students were of the opinion that academic pressure for good grades was a demotivational factor in their regular classes (see Table 37).

Table 37 Examples of the effect of ungraded activities and academic pressure

Element	Source	Example
Ungraded activities and academic pressure	Treatment level 1	<p>P: For me, performance in study skills [another subject] is very weak, and the guys may have noticed this [cross talk].</p> <p>Ps: It's not only you, this applies to all of us [cross talk].</p> <p>P: Because I'm always nervous, I cannot stand in front of the class and give a presentation [cross talk].</p> <p>P: Because the teacher is very serious [cross talk].</p> <p>P: And because the presentation is graded [cross talk].</p> <p>P: In study skills there are restrictions, you have to strictly follow the textbook [cross talk].</p> <p>P: But here we are free—I can be comfortable when participating, I can say anything whether right or wrong.</p> <p>P: Even if you make mistakes, it's okay [cross talk].</p> <p>P: It's not a problem.</p> <p>I: But you are doing group work in both subjects. Which one do you prefer and why?</p> <p>P: It's better here [cross talk].</p> <p>P: Yes, it's better here.</p> <p>I: Why?</p> <p>P: Because I am freer here.</p> <p>P: And not restricted by the textbook [cross talk].</p> <p>P: And it is not graded. When you know that the activities are not graded you are encouraged to participate, but in study skills if you make a mistake, you will lose marks right away.</p> <p>P: Also, in study skills, we are only doing one research paper. We write it and submit it and that's it—there is no competition between us [cross talk].</p> <p>P: It's a one-time thing [cross talk].</p> <p>P: You do it for the grades [cross talk].</p>

		P: Yes, for the grades. There is no competition.
		P: Here, psychologically you want to beat the other teams.

Moreover, although the idea of losing an activity was perceived as a demotivating element, it was not a major point of discussion during the interviews—it was referenced only 18 times across six interviews. On these occasions, losing was not discussed as a serious issue and was often accompanied by laughter (see Table 38).

Table 38 Examples of the effect of losing activities

Element	Source	Example
Losing	Treatment level 1	P: Even in the following week, I should have marked my motivation is high, the activity deserved it, but I marked it a little lower because we didn't win [laughing]. I: You're still upset about losing? P: Yes [laughing].
		P: I think there won't be the same level of excitement or motivation. If we win, we win, but if we lose it's not a problem.

The students argued that regular classes did not motivate them because of the rigid learning style in which they are not allowed to talk, express themselves or interact with each other, unlike during the activities of the intervention. They expressed that academic pressure made them nervous and, thus, demotivated them to participate or be interactive (see Table 39).

Table 39 Examples of lack of interaction in regular classes

Element	Source	Example
Lack of interaction in regular classes	Treatment level 1	P: Okay, maybe because the students get a full chance to participate, to speak and listen, and not just listen like in regular classes. It is motivational in my opinion.
		P: Because we only use Arabic—we don't use English except in English classes, we just listen and write down notes and leave when the class is finished. However, the contest allows you to express yourself in English. It gives you a chance to use what you have learned.

It appears that taking away academic pressure and allowing students to make mistakes motivates them to be more creative and interactive. As one student said, ‘When we knew that we could make mistakes, such as spelling mistakes, we were more comfortable to complete the tasks and be creative’ (participant in treatment level 1, interview number 2). In this regard, Nicholson (2015, p. 5) states that conditions ‘facilitating the freedom to explore and fail within boundaries’ are labelled as ‘play’ in the gamification literature and are at the heart of gamification theory.

5.3.2.2 Enjoyment and competition

Data analysis showed that enjoyment was one of the most frequently referenced codes in the data (see Table 40). Thus, I re-examined extracts coded as enjoyment to determine the main factors that had led to enjoyment of the learning process according to the students. This closer examination showed that students mentioned competition and performing the activities most often when they stated that they were enjoying participating in the contest.

Table 40 Examples of the effect of enjoyment

Element	Source	Example
Enjoyment from performing the activities	Treatment level 2	<p>I: Okay, how about the rest of you guys? What's your opinion?</p> <p>P: I think of it as a fun activity. Yeah, it's more of something to break the routine [cross talk].</p> <p>P: It's something to break the routine but it made you learn better.</p> <p>I: Can you elaborate please?</p> <p>P: I mean most likely after the group work, which is an enjoyable activity, it may make him more motivated and thus he will start working more on his own.</p>
	Treatment Level 1	<p>P: This is the point of objection. Don't take it personally, but the short story task maybe some of the students felt it was a bit boring. But, because this week's task is like a game, you noticed that once one team won; what did the leader immediately say? We want another one. He felt that it is enjoyable—we are enjoying it, so let's continue.</p>
Enjoyment from competition	Treatment level 1	<p>P: What makes it enjoyable for me?! It's the idea of competing. All games are based on competition at their roots. I feel that the notion of competition makes it more enjoyable. I feel if it was regular it would be a bit boring.</p>

These results align with the argument that competition (as a game design element) has the potential to offer 'learning experiences that are motivating, engaging, and enjoyable for learners' (Barzilai and Blau, 2014, p. 67). Moreover, enjoyment has been linked with creating a positive classroom environment (Meyer and Turner, 2006), enhancing motivation (Linnenbrink and Pintrich, 2002) and the perception of a successful learning experience (Pekrun et al., 2011).

5.3.2.3 Increased interaction and decreased social anxiety

Another aspect of a playful learning experience is an increase in interaction between the students and a decrease in social anxiety, which was the most frequently referenced code in the motivational elements category (see Table 28). It was found that the interaction between three elements—competition, freedom in class, and team identity—resulted in increased interaction and decreased social anxiety, as the extracts in Table 41 exemplify.

Table 41 Examples of higher interaction and reduced social anxiety as a result of interaction between the elements of competition, freedom in class, and team identity

Interactive elements	Source	Example
Higher interaction and reduced social anxiety as a result of interaction between fixed teams and competition	Treatment level 1	<p>P: To me, teamwork affected my motivation the most. it made the class interactive—you work together trying to come up with the right answer and when you do you get motivated even more and if you get it wrong you try to correct yourself. I mean, it creates competition in the class. Two teams compete with each other—who can come up with the right answer first. And also get on the leaderboard like the one we created. It's better.</p>
		<p>P: Not to mention that being in fixed groups made students know each other better and become better friends and thus can talk to each other with ease, because most of the guys, some of them they always sit alone and do not communicate with the rest of the class. So, this made us better friends and now we can joke which with each other like we are old friends. We can communicate better.</p>
Higher interaction and reduced social anxiety as a result of competition	Treatment level 1	<p>P: I feel that if there was no competition I may not even bother to participate. I may just listen to the information and not participate. But, because of the competition, when it is my turn, I must participate. I want to beat the other teams. But if the other</p>

		<p>students are not excited, I want to get excited either. So, I choose the second option—the contest and the activities.</p>
		<p>P: It's the same here—if we were competing on who wins, this will create interaction and participation during the entire semester. Everyone is trying to develop themselves; there is competition. But in the academic way—if you participate and you get the mark, that's it, you just sit back and relax or just be a passive listener.</p>
<p>Higher interaction and reduced social anxiety as a result of freedom in class</p>	<p>Treatment level 1</p>	<p>P: Honestly, I like everything because we were together and we were comfortable. It was an informal setting and there was nothing that I disliked.</p> <p>I: Do you feel that you don't want to participate during the activities because you don't want to make a mistake and your classmates would laugh?</p> <p>[Extensive overlapping speech]</p> <p>Ps: No [cross talk].</p> <p>P: When you work alone you get embarrassed when answering, it is better to do it with your friends than doing it alone [cross talk].</p> <p>P: When we make a mistake as a group, we just laugh about it [cross talk].</p> <p>P: Especially when you are working with people you know well.</p> <p>P: Sometimes I feel that my English level is not very good, but when I interact with my friends, I know that it's not only me—it's a general problem, which gives me confidence to learn from my mistakes.</p>

5.3.3 Theme 3: Context sensitivity

Data analysis showed that students were motivated by the activities of the intervention, with one of the main reasons being that they were a break from the routine of regular classes (see Table 42). In the GDMC hypothesis, accomplishing one proximal goal (represented by the weekly activities in the intervention) should motivate students to accomplish the next proximal goal, and so on. However, the application of a motivational model built on DMC theory (such as the GDMC framework) must fit the context of application. Analysis of the data indicates that the nature and number of these proximal goals or activities should be carefully considered so that they can provide a desirable change from the regular routine and not become routine themselves. In order for the intervention's activities to motivate the students by providing change, they must contrast with the rigid and passive learning experience in their regular classes (which were 'boring' according to most students) and be applied alongside regular classes which students view as educational.

Table 42 The effect of performing the activity as a change of routine

Element	Source	Example
Break the routine	Treatment level 1	P: In my opinion, the thing that motivates me the most about the contest is when I know that today's class will not be a regular class. You can enjoy yourself and break the routine. This is the most important factor.
		P: Honestly, change generates development. I remember when we were young and they brought a projector to class for the first time. This made us excited and motivated us to attend classes—we wanted to see what was going on. It's a good thing, honestly, such activities had benefited me before and they are really beneficial. But I have to emphasise that it has to be something new to us.

5.3.3.1 Nature of activities

Boredom during regular classes had the highest negative impact on students' motivation, and thus it was rational for the students to perceive the activities as a positive change and label them as motivational because they 'broke the routine' of their monotonous regular classes (see Table 43).

Table 43 Examples of the effect of boredom in regular classes

Element	Source	Example
Boredom	Treatment level 1	<p>P: It is a change from the textbook. The textbook is a bit ... [cross talk].</p> <p>P: Boring.</p> <p>P: Yes.</p> <p>P: It's something outside of the textbook and enjoyable.</p> <p>P: The textbook is tedious; the listening, the reading, are all the same.</p>
	Treatment level 2	<p>P: Also, when you are inside the classroom you are most likely bored, so the contests takes you out of this boredom mood. It makes you excited [cross talk].</p> <p>P: It takes you away from the usual routine mood, which is doing the same thing again and again [cross talk].</p> <p>P: I disagree, it depends on the method of teaching. If it was spoon-feeding, we just sit and listen and listen and listen, we get bored and even sleepy. So, when we have a break we go outside immediately, just to break the routine. And when we get back, we get sleepy again.</p> <p>I: Please describe how your English classes affects your motivation to learn the English language?</p> <p>P: The class does not motivate you [cross talk].</p> <p>P: Yes, no motivation [cross talk].</p> <p>P: There is a lot of narration and lecturing and no participation.</p>

		P: Yeah, there isn't a lot of excitement in class; as Hussain [pseudonym] said, it is just lecturing without participation.
--	--	---

In addition to describing the activities as enjoyable, students noted that discussing interesting topics during the activities was another element that allowed the students to see the activities as a positive change in routine. In other words, elements that constitute playfulness, such as enjoyment and freedom, should be incorporated in activities in order to provide the desirable change (see Table 44).

Table 44 Examples of the effect of discussing interesting topics

Element	Source	Example
Topics in classes	Treatment level 1	P: For me, if it wasn't for the activities, I would mark my motivation in regular classes according to my interest in the topic of each class. For example, if it was an interesting topic for me like travelling or history, the mark would be on medium or below medium.
		P: Because . . . if it is the same activity every week, I think we may get bored, but if there is a new topic for every task, we will not get bored—it would be impossible.
	Treatment level 2	P: In regular classes, the teacher may try to talk about new topics with us, but although it's a four-hour class he doesn't talk about topics outside the textbooks a lot, and even when we do, we stop and get back to just listening quickly. And on top of that there is no interaction in the class; he gets back to the textbook fairly quickly; he just talks, and we listen.

5.3.3.2 Quantity of activities

As explained in the previous section, one of the strengths of the activities is their ability to provide positive change from regular classes. However, most students warned that performing activities too often could make them tedious, taking away their motivational

power. Moreover, although the students said that their regular classes were boring and did not motivate them, they recognised their educational value. It was apparent that the students believed that actual learning happened in the traditional ‘demotivating’ classes. In other words, the gamified learning experience was not seen as a typical way of learning and, thus, not a substitute for traditional classes. Therefore, many students recommended striking a balance between the two methods of learning: the regular classes, where they believe actual learning happens and grades are collected; and the contest, where they are allowed to make mistakes while performing enjoyable and ungraded activities (see Table 45).

Table 45 Examples of students recommending a balance between regular classes and activities

Element	Source	Example
Balance between regular classes and activities (too many activities)	Treatment level 2	<p>P: It’s good to have a variety of methods. To have an informative lecture and an interactive activity.</p> <p>P: For example, when learning grammar, you must listen to the teacher explaining the rules [cross talk].</p> <p>P: Yes, it would be hard to participate in that.</p> <p>I: What do you think, Shahid [pseudonym]?</p> <p>P: In my opinion, both methods should be emphasised. I feel both are important [cross talk].</p> <p>P: Both are important; you cannot depend on one of them and dismiss the other [cross talk].</p> <p>P: Both are beneficial [cross talk].</p> <p>P: If you only listen to lectures you will get bored quickly, and if the class was entirely interactive students would not take it seriously, we will not focus on learning much.</p> <hr/> <p>I: Okay, would you like to continue with the activities every week or would you prefer that we stop?</p>

		<p>P: Yes, on the condition that we don't focus only on the activity and give enough time to the textbook. Otherwise, this may affect our grades in the exams.</p>
	Treatment level 1	<p>P: I think it's better to have both so there is change. We can learn more during regular classes and then apply what we have learned through the activities. So, we will learn a lot and we can remember more easily. If we work on these activities all the time it will be hard to learn a lot.</p> <p>I: So, you feel both learning styles are necessary?</p> <p>P: Yes.</p> <p>P: So, you don't get bored [cross talk].</p> <p>P: Also, you will learn a lot and get a chance to apply what you learned.</p> <p>I: What if we only learn through activities?</p> <p>P: No [cross talk].</p> <p>P: We would have the same problem [cross talk].</p> <p>P: We won't have a chance to learn a lot [cross talk].</p>
		<p>P: One disadvantage is that the activities waste time if we do them a lot. We have a specific curriculum that we must finish in a predetermined amount of time, so if we do a lot of activities, we won't have enough time to cover all the information in the textbook. As a result, we would have to cram a lot of information from the textbook in regular classes, and, if you attempt to cover a lot of information in one class, our minds would not be able to comprehend it and we will forget it quickly.</p>

In conclusion, to apply an intervention that aims to raise students' motivation, aspects of the context of the application such as the student's age, their view of their typical learning

experience, English level and cultural norms must be understood first in order to design an intervention that compliments these aspects and thus creates the desired change.

5.4 Demotivational elements and limitations

One of the interview questions investigated the elements that demotivate students in general, and the data analysis identified a number of demotivating elements: boredom, passive learning style (see examples in Tables 42 and 39 respectively), environmental factors (see examples in Table 46), and homework (see examples in Table 47).

Table 46 Examples of environmental factors as demotivational elements

Element	Source	Example
Environmental factors as demotivational element	Treatment level 1	P: Personally, I wasn't motivated by the activity because of the heat. The air conditioning was off, so it was too hot and even when we started the activity, I couldn't be excited.
	Treatment level 2	P: I am left-handed, and yes, also the lighting. I write with my left hand, but all the chairs are designed for right-handed people, so it is very difficult for me. P: When the lights are very dim in some rooms it becomes very hard to focus and read, which is frustrating and after a while I just give up.

Table 47 Examples of homework as a demotivational element

Element	Source	Example
Homework as a demotivational element	Treatment level 1	P: Look, in the first week we didn't start the activities until the end of the week, and because we had a lot of homework and long hours I wasn't in the mood. So, I just put it medium and I maybe would have marked it even lower. It wasn't a good week at all.

	Treatment level 2	P: They gave us a lot of homework. I actually marked it as low because of that.
--	-------------------	---

Taking into consideration that treatment level 1 had approximately twice the number of students as treatment level 2 (treatment level 2 group had one class, G103, and did not participate in the contest, while treatment level 1 group had two classes, G104 and G106, both of which participated), most of these demotivational elements were referenced by students in treatment level 2 (see Table 48).

Table 48 Highest referenced demotivational elements by treatment group level

Code	Number of references by treatment level 1 groups	Number of references by treatment level 2 group
Boredom	41 (57%)	32 (43%)
Learning style	42 (56%)	33 (44%)
Environmental factors	24 (80%)	6 (20%)
Homework	2 (7%)	25 (93%)

As discussed earlier, the elements of boredom and learning style were referenced mostly as elements of regular classes and not the intervention. Elements that were coded as ‘environmental factors’ and ‘homework’ were mostly personal or not connected to the interventions and thus beyond the teacher’s control. However, upon identifying the pattern of environmental factors during the focus group interviews (labelled as ‘miscellaneous factors’ at that time), another question was added to the interview question list. I asked the students whether participating in the contest and performing the activities had any impact on those environmental demotivational elements. Most responses

indicated that the students momentarily forgot the demotivational elements while performing the activities. Such responses were coded as ‘lost in the activity,’ which was referenced 37 times (see Table 25 and examples in Table 49). In such instances, the students reported that while performing the activity, they solely focused on the task at hand to the degree that they did not think about anything else, which made the demotivational elements fade away temporarily.

Table 49 Excerpts exemplifying students forgetting environmental demotivational elements while performing the activity

Element	Source	Example
Lost in the activity	Treatment level 1	<p>I: Okay, you told me about the things that demotivate you and make you unmotivated to work and learn during your English classes. Now tell me about the effect of these demotivators on you when we were working on the weekly tasks?</p> <p>P: Probably it makes us forget the thing that demotivates us like the back pain. You know, because we are working on something else.</p> <p>P: Working on the weekly task may make me forget about the uncomfortable chair but it doesn't make a difference when it comes to the temperature.</p> <p>P: Yes, for me I will forget about the uncomfortable things because I will be focusing on the task. Otherwise, I will be just sitting and listening without any change.</p>
	Treatment level 2	<p>P: It's an enjoyable class and the time passes quickly. The activity makes time pass faster and you learn and enjoy at the same time. You don't feel the time.</p>

Moreover, despite the positive impact of the intervention, some students stated that participating in the contest and/or performing the activities demotivated them or that they were not interested in the intervention (i.e., they had neutral feelings; see code description in Appendix P). However, these instances were rare. For example, ‘activity as a

demotivational element' was referenced 22 times; 'uninterested in the contest' was referenced five times and only two references were made identifying the contest as having a negative impact on motivation.

5.5 Summary

This chapter presented qualitative findings regarding the motivational elements that influenced the students' learning experience during the intervention. I found that students experienced an increasing motivational current throughout the intervention, and two main themes were identified as generating this motivation. Also, a third theme was identified that relates to the context of the intervention and the application process.

First, the process of generating students' motivation through the application of a GDMC intervention should be structured (as a classroom contest in the case of the present study). This means that factors such as the team identity, challenging goals, and game design elements must be included to mark the beginning and end of the intervention, connect proximal goals together, and create competition. Second, the analysis showed that dynamic interaction between the structural elements resulted in a learning experience that has particular aspects that make it 'playful.' A playful learning experience is a learning experience that is enjoyable, provides freedom to students to experiment and make mistakes, and increases interaction between students while decreasing social anxiety. The third theme that emerged from the intervention relates to its application. It was found that the GDMC intervention is not universal in its ability to generate motivation, but rather contextual. In other words, the applied intervention model must correspond to the context's needs and boundaries as context parameters affect aspects of the intervention application process, such as the nature, intensity, and quantity of the employed activities.

This can be accomplished by including the students in the intervention design process and through frequent monitoring of the intervention's effect on students' motivation.

Chapter 6 Discussion

6.1 Introduction

Due to the complex nature of motivation research, this chapter begins by providing an outline of the main points for discussion. In doing so, it also provides a brief summary of directed motivational current (DMC) theory and how it was applied in the present study in an L2 classroom through the integration of game design elements, resulting in the gamified directed motivational current (GDMC) framework. The chapter then presents the interpretations of the study's findings followed by a discussion of the findings' implications.

6.2 Outline of the main points for discussion

As discussed earlier, Dörnyei et al. (2015c, p. 103) define a DMC as a surge in motivation that results from the alignment of many 'personal, temporal, and contextual factors/parameters, creating momentum to pursue an individually defined future goal/vision.' DMC theory describes an organic phenomenon that can be observed in real life. For example, a person who decides to become physically fit and thereafter gains and maintains the motivation necessary to reach their goal is a person who has benefitted from a DMC (see Section 2.3 for a detailed discussion of DMC theory).

Muir (2016) made one notable attempt to employ DMC theory in L2 learning. Based on her findings, she concluded that DMC theory could be operationalised as a motivational tool in L2 learning. However, she did not examine the various 'personal, temporal, and contextual factors/parameters' (Dörnyei et al., 2015b, p. 103) that led to the emergence

of the group motivational surge in her study (see Section 2.3.4 for further discussion on Muir's study).

The current study is based on the premise that game design elements can operationalise DMC theory in an L2 classroom setting. To investigate the effect of gamifying DMCs, I conducted an educational intervention based on the GDMC framework with three groups of participants (see Table 50).

Table 50 The three motivation levels used in the study

Participating group	Description
Treatment level 1	Participants competed in fixed teams in a classroom contest based on the GDMC model. The teams could win weekly activities, collect points, and climb a leaderboard.
Treatment level 2	Participants had the same weekly activities as treatment level 1, but without game design elements (no points, leadership board, competition, etc.). Participants completed the activities in randomly assigned groups.
Control group	No treatment was applied

Mixed methods were employed to investigate the GDMC intervention's effect on the temporal and dynamic aspects of students' L2 motivation. First, I used quantitative methods to examine the temporal aspects of L2 motivation, i.e., the fluctuations in students' L2 motivation levels during the GDMC intervention. The first research question asks how students' L2 motivation levels fluctuate during the application of the GDMC intervention plan. To answer this question, I discuss the differences found in the statistical analysis of the questionnaires and the trendlines of the three participating groups motivation-tracking graphs. Second, I adopted qualitative methods to examine the dynamic interactions between the students and motivational elements through the

students' own interpretations of their learning experiences. The second research question asks how students describe their motivation relative to their learning experiences during the application of the GDMC intervention, and the third research question asks what construct (i.e., components, conditions, and triggers) of the motivational currents was created by GDMCs. To tackle the dynamic aspect of motivation and answer the second and third research questions, I draw on the results of the focus group interviews and focus on discussing the relationships that developed between the motivational and demotivational elements within the intervention. I also discuss those relationships' effects on students' motivation levels by comparing how the construct of motivation (i.e., components, conditions, and triggers) was conceived by DMCs and perceived in GDMCs. Put differently, I employ retrodictive qualitative modelling, which is similar to the approach taken by Muir and Dörnyei (2013), to deduct the components, conditions, and triggers that created the group GDMC in the current study. Therefore, the present study adds to the scarce literature on the application of DMC theory in L2 learning by offering a further in-depth examination of the temporal and dynamic aspects of the motivational currents created by the GDMC intervention.

6.3 The temporal aspects of motivation: How did students' L2 motivations fluctuate during the GDMC intervention?

One of this study's aims was to detect the temporal changes in students' motivation and to determine how their motivation fluctuated during the GDMC intervention. To do this, I start by discussing the impact of the GDMC intervention on the treatment level 1 group, for which the GDMC intervention was applied. An explanation of the temporal changes in motivation levels in the treatment level 2 and control groups is then provided by comparing their trendlines.

To investigate the temporal aspects of motivation, the results of the questionnaires for the treatment level 1 group were compared at three points in time during the intervention: the beginning (R1), middle (R2), and end of the intervention (R3). As explained earlier, treatment level 1 was applied with two separate classes (G104 and G106) to ensure the consistency of the study's results. In both classes, the intervention created an increasing motivational current. Put differently, students' collective motivational levels had increased at each round of data collection. Moreover, triangulation of instruments was used to increase the credibility and validity of findings. All students marked their motivation level (rated from 1 to 5) on a motivation-tracking graph weekly. The motivation trendlines of the treatment level 1 group (see Figures 11 and 12) illustrates this upward trend, thus confirming the questionnaires' results. The study's findings lend further support to DMC theory and validate the argument that a gamified DMC (i.e., a GDMC-based intervention) can initiate and sustain motivational currents in a classroom setting.

In the current study, the control group's motivation levels functioned as the baseline for students in the study's context (the foundational year at UQU). In general, all students possess a certain degree of motivation to succeed in their studies and realise their future personal vision. Nonetheless, the quantitative results demonstrated an observable decrease in motivation within the control group (see Figure 14). The absence of a series of common proximal goals (opposite to treatment level 1 group) might be the reason for the group's overall motivation decline. Regardless, the results fit with previous research that examined the temporal and dynamic nature of motivation and linked participants' fluctuations in motivation to individual differences (Piniel and Csizér, 2015) when no motivational elements are applied.

Unlike the control group, the trendline for the treatment level 2 group illustrates that students experienced an increase in their overall motivation levels until the sixth week of the intervention, when students experienced a strong decrease in their motivation levels despite the weekly collaborative activities (see Figure 13).

The positive but short-term change in the treatment level 2 group's motivation may be explained by the established motivational power of collaborative work, which has been found to positively affect motivation (Condliffe et al., 2017). The differences between the motivation levels of the treatment level 1 and treatment level 2 groups suggest that merely injecting elements of motivational power into the learning process may initiate but cannot *sustain* high motivational currents. This effect held true for collaborative work (the motivational element in the treatment level 2 group) and is likely to be the case for game design elements, as the literature on gamification suggests (e.g., Szabó and Szemere, 2016).

A closer examination of the focus group interviews analysis shows that boredom, which is the second highest coded demotivational element (see Table 48), seems to be the reason for the decrease in treatment level 2 group motivation. Participants from the treatment level 2 group were asked the same question regarding demotivational elements during all three focus group interviews. Comparing qualitative data from the three interviews shows a surge in references coded as boredom in the second interview, which was conducted around the sixth week of the intervention, at which point students' motivation levels showed a steep decline. There were five references coded as boredom in the first interview, 12 in the second, and 15 in the third.

Students appeared to associate boredom with the traditional pedagogy they are accustomed to in their regular English classes. Thus, when the motivational framework (the GDMC-based intervention in the case of this study) was removed, the affordance of motivational elements faded over time, causing the students to associate collaborative work with the pedagogical methods they experience in their regular classes, which they described as boring.

Students in the treatment level 2 group experienced collaborative work but had no shared long- or short-term goals, which were elements incorporated in the contest applied with the treatment level 1 group. Therefore, it appears that elements such as common proximal goals and competition are needed to link all the activities and give the activities purpose in order to sustain motivational momentum. In fact, students in the treatment level 2 group agreed that they would have been more motivated by the collaborative activities if the activities had been conducted as part of a contest.

Moreover, the qualitative analysis revealed an inverse relationship between the decline in the treatment level 2 group's motivation trendline and the number of references to boredom. In other words, as the intervention progressed, students' motivation levels decreased, and the number of references to boredom increased. Ushioda (2003, p. 94) explains this type of relationship by stating that

collective motivation can all too easily become collective demotivation, boredom, or at the far end of the spectrum, collective dissatisfaction or rebellion, often in the form of classroom counter-cultures defined by rejection of educational aims and values.

A comparison between the trendlines of the treatment level 2 group and the control group shows that although the element of collaborative work was integrated in the treatment level 2 group's learning experience but not the control group, both groups finished the intervention period with the same total score of 2.4 (out of a possible 5.0) on the motivation-tracking graph. However, I would argue that the somewhat gradually declining trendline of the control group indicates that the group's motivation levels would have stabilised instead of declining further. By comparison, the sharp decline in the treatment level 2 group's motivation levels at week six suggests that the group's motivation would probably have continued to decline.

In conclusion, the present study supports the argument that initiating and sustaining a high motivational current is a dynamic process involving a number of complicated conditions and triggers rather than a cause-effect relationship (Dörnyei et al., 2015a; Ushioda, 1996). The present study also parallels other recent studies by confirming that the influence of motivational elements depends on students' perceptions of the roles those elements play in their learning experiences rather than the mere presence of these elements in the pedagogy (Dörnyei and Murphey, 2003; Dörnyei and Ushioda, 2013). Students' perceptions are discussed in the following sections.

6.4 The motivational construct of GDMCs: Components, conditions, and triggers

Drawing on the previous section's discussion of GDMCs' ability to operationalise DMC theory, in this section, I discuss the GDMCs' components, conditions, and triggers as reported by the students' own interpretations of their learning experiences. The DMC construct was discussed in Sections 2.3.1 and 2.3.2, and, although other empirical studies

have supported DMCs' construct of motivation in individuals, the findings of the current study suggest that the same construct may not apply to an L2 classroom. This result may be due to the differences between the examined subjects, because while other studies have examined individuals in real-life situations, the present study examined a group of students in an L2 classroom. As discussed in Chapter 2, most studies that aim to validate the DMC construct have examined this motivational phenomenon by assessing different aspects of the lives of individuals with particular goals and personal visions, and the results have often been linked to internal motivation. Examples have included a woman who was motivated to learn an L2 because she wanted to move to a foreign country (Safdari and Maftoon, 2017) and teachers who were motivated to pass an English teacher training program (Zarrinabadi and Tavakoli, 2017). In other words, DMCs have been explored as a phenomenon of motivation in internally motivated individuals but not as a phenomenon within an L2 classroom of students who have a wide range of internal motivation levels and individual differences. Therefore, the following sections explore the dynamic aspects of motivation by drawing on qualitative findings to identify the components, conditions, and triggers that enable the GDMC intervention to impact motivation.

6.5 Components of GDMCs

Because the GDMC intervention was applied only to the treatment level 1 group, the discussion here focuses on that group, drawing comparisons between it and the treatment level 2 and control groups as needed. The primary difference between the treatment level 1 and treatment level 2 groups was the addition of game design elements. The DMC construct was gamified to provide it with three forms of structure. First, the gamification of the weekly activities transformed them from educational activities into challenging

proximal goals that students would want to accomplish. Second, linking all of the weekly activities into a single contest created a shared goal, which prompted team members to work together and compete against each other in order to win. Third, the activities initiated a motivational current that is stimulated and triggered by students' initial interests. To summarise, game design elements can facilitate the structuring of motivation and the creation of the DMC's components: (a) a shared goal, (b) a salient facilitative structure, and (c) an experience that provides positive emotions (see Section 2.3.1). Nonetheless, in the current study, I found that the construct of the motivational current created by the GDMC intervention differed from the one conceptualised by DMC theory. Therefore, this section focuses on the GDMC's construct of motivation and compares findings on the matter with relevant literature about DMCs.

6.5.1 From distal goals to shared and directed challenging proximal goals

The first and most prominent component of a DMC is an orientation towards a personal goal/vision (Muir and Dörnyei, 2013). According to Dörnyei et al. (2015c), while the desire to achieve one's goals has the power to drive one's actions, a strong personal vision provides meaning to those goals. The authors argue that a defined goal coupled with a personal vision directs learners' behaviours towards completing a series of routine tasks (i.e., proximal goals) that lead to the realisation of their goals. The present study aimed to create challenging proximal goals using the gamified weekly activity (instead of the repetitive routine tasks in a DMC) in order to direct students' motivations in the GDMC intervention towards the distal goal of winning the contest (instead of a personal goal/vision, as in a DMC).

The current study's findings recognised the presence of elements related to long- and short-term goals. However, as the following section discusses in more detail, there was a noticeable difference between the roles of the two concepts as driving forces of the motivational current created by the GDMC intervention.

As explained in Section 5.3.1, most students reported that they were motivated by the weekly activities more than by their desire to win the contest. Although students acknowledged the role of the long-term goal of winning the contest as a structural element, they felt it held little motivational power. Most students attributed more motivational value to the short-term goal of the challenge of winning the weekly activities. It seems that, as mentioned earlier, the different context of application between DMCs and GDMCs may be a reason for this difference in the motivational affordances between the components of long- and short-term goals. Because DMC theory explains a motivational phenomenon observed in individuals with a *personal* goal/vision that they set for themselves, both the distal goal and proximal goals are perceived to be equally important to sustaining motivation. In contrast, in the context of the L2 classroom, these two elements are imposed and not personal. This key difference may explain why distal and proximal goals, despite having been perceived as integral motivational components of a DMC, hold different motivational power and roles in a GDMC. The short-term goals of winning the weekly activities (i.e., the proximal goals in the GDMC intervention) were perceived by the students to hold more motivational power than the long-term goal of winning the contest at the end of the semester (i.e., the distal goal in the GDMC intervention).

One of the aims of this study was to examine the effect of implementing the GDMC framework on students' motivation. As mentioned in the literature review, it has been established in gamification literature that game design elements can positively influence extrinsic motivation by immediately grabbing students' interest and changing their behaviour (see Section 2.4). The influence of short-term goals discussed above seems to support the choice for using gamification principles to enhance extrinsic motivation and thus initiating a directed motivational current in an L2 classroom setting. A note of caution is due here since several prior studies have shown that using game design elements without a comprehensive motivational framework to merely enhance students' extrinsic motivation carries some risks and may have negative effects (see Section 2.4). The positive motivational effect of short-term goals in my study further supports the study's hypothesis of incorporating game design elements with a goal-oriented theory of motivation (i.e., DMC theory) to create and sustain a motivational current that uses proximal goals to reach a distal goal at the end of the directed motivational current, thus minimising the negative effect of focusing on solely extrinsic motivation.

However, that is not to say that distal goals had no value in the study's context. The distinction between proximal and distal goals is not new and has been discussed previously in the field of behavioural science (e.g. Latham and Seijts, 1999; Stock and Cervone, 1990; for a review, see Sun and Frese, 2013). Studies have taken two primary avenues in comparing proximal and distal goals (J. Simons et al., 2004b). The first is to compare how distal goals and proximal goals impact motivation, as exhibited by Bandura's (1986) position that proximal goals are generally more motivating than distal goals. The second is to examine isolated short-term goals versus short-term goals that are part of a pathway towards long-term goals. This second avenue has revealed that a

combination of proximal and distal goals increases motivation for short-term and long-term goals (e.g., Husman and Lens, 1999; Lasane and Jones, 1999). Such results have been echoed in the field of L2 motivation, including in the present study's discussion of DMCs and GDMCs, as there is consensus that dividing distal goals into proximal, attainable subgoals that lead to distal goals affects motivation positively (Chen et al., 2020; Lee and Bong, 2019; Mikami, 2020; Simons et al., 2004a, 2003). In line with what is found in the L2 literature, this research determined that a combination of proximal and distal goals created a directed motivational current. However, the study's results suggest that to maintain motivational momentum, focus on distal goals (i.e., winning the contest) should be reduced in classroom settings in lieu of proximal goals (i.e., winning weekly activities).

6.5.2 A salient facilitative structure that promotes friendly competition

In the previous section, I discussed the motivational value of distal and proximal goals. This section discusses the roles that these elements play in creating a salient facilitative structure that promotes competition, which is the second component of GDMCs.

As explained earlier, DMC theory indicates that a motivational current should have a salient facilitative structure with a clear starting point and a series of repetitive routine tasks (proximal goals) that lead to a well-defined conclusion. On the one hand, the findings of the present study suggest that in addition to the motivational value of the weekly activities, these activities also play the role of energising the motivational current by serving as regular checkpoints that provide affirmative feedback. Such feedback manifested in two ways. First, students perceived the points they earned via the activities as leading to the long-term goal of winning the contest. Thus, most students reported that

they were motivated to accomplish each weekly activity because they wanted to win points, which the students understood would accumulate and ultimately raise their position higher on the contest leaderboard. Second, students perceived the contest activities as educationally beneficial, which further allowed the weekly activities to aid in sustaining students' motivational current. Namely, the students understood that the activities were directly linked to the textbook and remarked that their performance in the activities made them aware of their L2 levels and motivated them to study more (see examples in Table 34).

On the other hand, although the distal goal of winning the contest was perceived to hold less motivational value than the proximal goals, it still played an integral role in linking all the activities in the contest through the use of a leaderboard. The use of the distal goal not only increased the motivational affordances of the proximal goals, as discussed earlier, but also allowed the intervention to be structured as a directed motivational current. Focus group data suggest that the distal goal of winning the contest directed the motivational current towards a predefined goal, as winning the weekly activities led to winning the contest through the accumulation of points. Otherwise, completing the weekly activities would be 'just hanging out and chatting' or 'like doing homework,' as some students stated (see Table 29). In conclusion, the findings of the present study show that the use of points to set proximal goals and the use of a leaderboard to set a distal goal provided a salient facilitative structure for motivation and successfully operationalised the concept of directed motivation in an L2 classroom setting as a result.

The qualitative data revealed that the GDMC structure of motivation discussed above directly resulted in competition, which was regarded as a major source of motivation by

the students (see Section 5.3.1). Each weekly activity was designed as a game to be won, generating competitiveness or ‘the desire to excel in comparison to others’ (Bailey, 1983, p. 96). The treatment level 1 group, who participated in the contest, and the treatment level 2 group, who did not, completed the same weekly activities. Nonetheless, the way the participants in the former group described the activities revealed that the excitement of competing against each other gave meaning to those activities, ensuring the sustainability of the motivational currents. Thus, the motivation of the treatment level 1 group to achieve the goal of winning the contest continually increased, which would not have been possible with the repetitive routine tasks postulated in DMC theory.

Such findings corroborate the findings of studies that have concluded that gamifying the learning process through competitiveness can increase motivation. To illustrate this, Tejedor-García et al. (2020) employed the same game design elements as the present study (points and leaderboards) to increase students’ L2 motivation and create competitive scenarios in which students had to compete with one another to score points and climb a leaderboard. Their ‘[r]esults show intense practice supported by a significant number of activities and playing regularity, so the most active and motivated players in the competition achieved significant pronunciation improvement results’ (p. 74250).

However, Kong et al. (2018, p. 108) warn that ‘while competition acts as either a facilitating or debilitating factor, learners of English as a foreign language (EFL) may experience a decrease in their motivation due to excessive pressure from competition.’ In the current study, the intervention’s impact on the students’ context-specific motivational disposition relevant to the GDMC intervention was assessed through the second dimension of the questionnaire. This second dimension of learners’ attitudinal state aimed

to assess L2 classroom anxiety, L2 classroom linguistic self-confidence (Clément et al., 1994; Guilloteaux and Dörnyei, 2008), and students' willingness to communicate (Peng and Woodrow, 2010). Quantitative analysis revealed that the intervention's impact on learners' attitudinal state in the treatment level 1 group (when compared to the treatment level 2 group) was negative at the beginning of the intervention (R1), insignificant at the middle of the intervention (R2), and positive towards the end of the intervention (R3). However, overall, the treatment level 1 group had lower classroom anxiety and significantly higher linguistic self-confidence and willingness to communicate than the treatment level 2 group (see Section 4.4). The contest was designed to be detached from the students' regular classes and not to affect their grades in any way. Therefore, as reflected in the quantitative data, it appears that students relaxed with time, began to comprehend the friendly premise of the contest, and slowly but steadily engaged more with the motivational elements in the intervention and with each other.

In conclusion, the study's findings showed that the employed game design elements were able to structure the gamified motivational current in a way that promoted competition and increased motivation. Moreover, in addition to creating competition, game design elements were found to eliminate boredom and promote enjoyment—two key factors that are not part of DMCs yet appear to be necessary for the facilitation and sustainability of high motivational currents in the present study.

6.5.3 From positive emotion to enjoyment

The third component of DMCs is that the experience should promote positive emotions. A DMC involves accomplishing a *series* of routine tasks that may or may not be enjoyable in and of themselves 'but are rewarding chiefly because they *transport an individual*

toward a highly valued end' (Dörnyei et al., 2015b, p. 5). Waterman (1993, p. 679) argues that '[s]uch experiences of personal expressiveness appear conceptually linked with the feelings associated with intrinsic motivation (Deci and Ryan, 1985), flow (Csikszentmihalyi, 1975; 1988) and peak experiences (Maslow, 1964; 1968).'

Most of the students associated the GDMC learning experience created by the intervention with positive emotions. However, the current study provided more information on the source and description of such positive emotions in a classroom setting. The qualitative analysis revealed that enjoyment was a major theme in the focus group data. Students reported that participating in a friendly competition made them enjoy completing the weekly activities. Gamifying the learning process may be a source of enjoyable feelings. The game design elements used in the study were successful in creating an environment where both winning and losing were possible outcomes, which in turn made the students perceive the weekly activities as challenging, since there was only one winning team out of five, and energised the motivational currents as students continuously attempted to collect points and climb the leaderboard.

In conclusion, the feelings of enjoyment generated by GDMCs and DMCs are different in their sources and the structures underpinning them but similar in that both have the ability to create flow, which is 'a state of intensive involvement in a task which feels so absorbing that people often compare it to being outside of everyday reality' (Dörnyei et al., 2015b, p. 3). The most notable sources of enjoyment in GDMCs include engaging with immediate gamified activities and friendly competitions.

6.6 Conditions and triggers of GDMCs

Dörnyei et al. (2015b, p. 59) argue that ‘the successful launch of a DMC relies on two key factors: the alignment of the necessary conditions (i.e., contextual, personal and time factors), and the availability of a specific triggering stimulus. The latter cannot be effective without the former.’ This section provides a more detailed discussion of the nature of the conditions that must align, along with triggering stimuli, to enable successful initiation and sustainment of group GDMCs in an L2 classroom setting.

6.6.1 Aligned conditions

Three conditions must occur together and align to create motivational currents. Per DMC theory, Dörnyei et al. (2015b) argue that the three necessary conditions for a DMC initiation are a well-defined goal and personal vision, a sense of ownership and control over the process and its outcome, and an openness to the DMC experience. For a DMC, these conditions occur naturally and are controlled by the individual. However, for a GDMC, the necessary conditions must be purposefully designed and are governed by the intervention parameters. Therefore, data analysis in the present study shows that the successful launch of GDMCs in an L2 classroom requires slightly different conditions than the ones outlined in DMC theory.

The first condition of GDMCs is a series of challenging activities with a clear purpose. The weekly activities were made to be challenging in two ways. First, the activities engaged the students in somewhat difficult learning tasks that acted as regular checkpoints and enabled them to reflect on their learning progress (see Table 34). Second, the activities prompted the students to interact with each other. Designing activities were

kept challenging, as discussed above, in part thanks to the use of points. In turn, the prospect of losing or winning points made the students compete with each other to reach the predefined goal of accumulating points and climbing the leaderboard. Thus, the challenging activities acted as a precondition to the component of friendly competition (discussed in Section 6.5.2).

As a personal motivational construct, DMC theory postulates that a sense of ownership and control over the motivational process is an essential condition for the current's launch. In contrast, initiating and sustaining a group GDMC required group motivational currents with an underlying educational goal, so a strong team identity was found to be an essential condition. Students were allowed to choose their teammates and team names to foster team identity (see Table 7). Data analysis showed that students were more motivated because they were working in teams; many students stated that they did not want to be the reason their team lost an activity (see examples in Section 5.3.1.2). It seems that team identity was reflected in students' awareness of their individual responsibility for ensuring their team's name would be featured at the top of the leaderboard.

Finally, for both DMC and GDMC experiences, openness to the experience was found to be a requirement for the creation of a high group motivational current. Analysis of both qualitative and quantitative data suggests that attitudinal dispositions played a role in students' engagement level, and thus a positive disposition is a necessary condition for entering a GDMC. For example, when discussing the idea of a classroom contest, one student from the level 2 group stated, 'If you want me to be honest, if it was optional, I don't think that I would participate [in the contest]' and described the contest as 'a waste of time.' Another student from the level 1 group said that the contest 'could be a waste of

time . . . Some students just don't want to be bothered with any extra activities, they want to attend the lesson and leave.' As discussed in Section 2.3.2, such findings support the increasing number of studies which have found that particular innate personality traits such as 'general curiosity for and interest in life, persistence, and low self-centeredness' make some students more susceptible to experiencing high levels of motivation (Nakamura and Csikszentmihalyi, 2002, p. 93). This means that to minimise the effect of individual differences, students' initial interest in the intervention must be triggered by a suitable stimulus.

6.6.2 Triggers to start the motivational current

Dörnyei et al. (2015b, p. 150) argue that 'contrary to individual DMCs—in which the goal and trigger are separate entities—in group-level DMCs these two elements are merged together, so interest and involvement in a project are triggered by the goal itself.' In contrast, the findings of the current study suggest that in group GDMCs, the intervention's distal goal was not the primary source of motivation and, moreover, did not act as a trigger for the motivational current. This means that, in the study's context, a triggering element was needed to engage students' initial interest and thus start a group GDMC. The data showed that game design elements not only acted as an adequate stimulus to trigger GDMCs, but also continually energised the motivational current. It seems that designing the intervention as a contest that used points and leaderboards effectively engaged students' initial interest, which allowed for a successful group GDMC initiation. The intervention's premise was positively perceived by the students, as reflected by the number of references coded as 'change of routine,' which was the second highest code in the motivational elements category (see Table 25). Moreover, it was apparent that the students were excited to participate in the contest as all 14 references

coded as ‘uninterested in the intervention’ (see Appendix P) came from the focus group interviews conducted with the level 2 group, whose members did not participate in the contest. In addition to this, as explained earlier, game design elements kept the motivational momentum going by prompting students to engage in a friendly competition to win points and climb the leaderboard on a weekly basis.

6.7 Summary

This chapter’s primary objective was to discuss the temporal and dynamic aspects of GDMCs that comprise a practical framework able to operationalise DMC theory in an L2 classrooms environment. The results generally support those of Muir’s (2016) study, which found that DMC theory can be used to create group directed motivational currents in an L2 classroom. The current study’s findings further showed that a temporal DMC—a directed motivational current that increases over time until the intervention’s goal is met—has been successfully created in an L2 classroom. Nonetheless, the current study found that the characteristics of the motivational currents created in the study’s context differ from the ones described in DMC theory. To structure and energise the motivational current, a DMC requires a combination of personal distal and proximal goals and future vision; in contrast, a GDMC requires gamified proximal goals, friendly competition, and enjoyment. Moreover, the conditions added to the GDMC intervention were found to align with each other in a way that allowed the motivational structure to increase students’ motivation and create a playful learning experience. Finally, the students perceived points and leaderboards to provide sufficient change from the routine of their regular classes to capture their interest in the contest, which in turn allowed the initiation of group GDMCs.

Chapter 7 Conclusion

7.1 Introduction

In this chapter, I conclude my study by revisiting its main aims, restating key findings, discussing the study's contribution to L2 teaching and motivation research, and highlighting the study's limitations. Lastly, I offer suggestions for future research pathways.

7.2 Research summary and major findings

Chapter 1 reviewed the growing number of studies that have found L2 motivation problematic among university-level students in Saudi Arabia (the context of the current study). Addressing this problem inspired and directed my study. Therefore, the current study has explored the possibility of using game design elements to operationalise direct motivational currents (DMCs) in an L2 classroom setting. To investigate the usefulness of integrating game design elements with DMC theory, I implemented an educational intervention based on the gamified directed motivational current (GDMC) framework. I aimed to investigate both temporal and dynamic aspects of students' motivation. Therefore, mixed methods were employed to collect data to examine the fluctuation of students' L2 motivation levels during the GDMC intervention and students' description of their motivation relative to their learning experiences. I also set out to examine the construct (i.e., components, conditions, and triggers) of the motivational currents created by the implementation of the GDMC intervention. The gathered data allowed insights into the effects of GDMCs on students' motivation. In the remainder of this section, I summarise the study's major findings under the research questions.

RQ1: How do students' L2 motivation levels fluctuate during the application of the GDMC intervention?

I found that integrating game design elements with DMC theory successfully raised students' motivation over time. Analysis of treatment level 1 data (who experienced the GDMC intervention) revealed that the application of the GDMC intervention in a classroom environment resulted in a group motivational current that continually rose until the intervention's conclusion. Analysis of the motivation assessment questionnaire revealed that the treatment level 1 group experienced an upward trend in motivation that the treatment level 2 (who experienced the same weekly activities as the treatment level 1 group, but not as part of a classroom contest) and control groups' motivation did not have. Significant statistical difference has been found between the three groups that showed that, as the intervention progressed, the motivation levels of the treatment level 1 group increased, while the motivation levels of the treatment level 2 and control groups decreased.

Such results were confirmed by the analysis of the motivation-tracking graphs. Data points were plotted as trendlines. The trendlines of treatment level 1 depicted the same upward trend indicated in the findings of the questionnaire analysis, while trendlines of treatment level 2 and control groups' motivation fluctuated heavily during the data collection period and ended with a downward trend, which indicates further decline in the groups' motivation levels. Overall, of the three participating groups, only treatment level 1 experienced an increase in students' motivation during the intervention, while the other two groups saw a considerable decrease in their motivational levels by the end of the data collection.

The qualitative data showed that the use of points and a leaderboard in the GDMC intervention (implemented with treatment level 1 group) generated competition. Students in treatment level 1 competed in teams to win the weekly activity, which in turn generated positive emotions and motivation. Students' desire to win the weekly activity energised the motivational current by creating a self-propelling momentum as they competed to accumulate points and climb the leaderboard on a weekly basis. Such motivational dynamics resulted in raising a motivational current powered by students' desire to accomplish a series of competitive and challenging proximal goals (i.e., winning the weekly activity) which created the recognisable shape of a motivational surge described in DMCs (Dörnyei et al., 2015b), as shown in Figure 20.

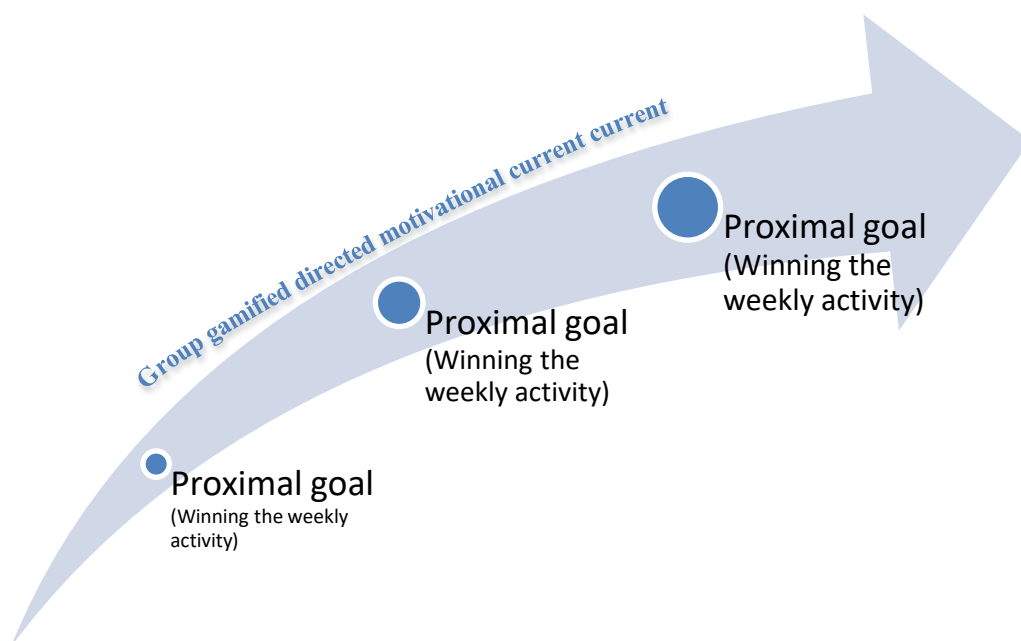


Figure 20 Shape of the motivational current of GDMCs

RQ2: How do students describe their motivation relative to their learning experiences during the application of the GDMC intervention?

After each weekly activity, I conducted focus group interviews with volunteer students from the two experimental groups. Three themes emerged from the analysis of the focus group interviews. First, I found that that in order to create an increasing L2 motivational current in a classroom setting, a purposeful design of a holistic experience has a more positive impact on students' L2 motivation when compared to injecting individual elements that are perceived to be motivational (e.g., collaborative work). The educational intervention implemented in the current study was purposefully designed as a classroom contest. Analysis of the focus group interviews indicated that three core components of the contest played an important role in creating a motivational system that allowed the GDMC intervention to impact students' motivation: game design elements, challenging proximal goals, and team identity. Qualitative analysis showed that the dynamic interaction between these core components made the students perceive the system (i.e. the classroom contest) to have a positive impact on their motivation.

The findings of the present study are in line with the recent trend in the literature of viewing L2 motivation as a complex system in which multiple components are interlinked and affect each other (Dörnyei et al., 2015a). In a GDMC, the core components put in the motivational system have been found to promote a playful learning experience through dynamic interaction between the intervention's components and the students. Distinct characteristics were found to constitute what I label a playful learning experience. Students in the treatment level 1 group reported that they enjoyed interacting with classmates within their teams and competing against other teams in an environment in which they were allowed to make mistakes and felt less anxiety in comparison to their

regular classes. Such a playful learning experience was the second theme revealed by the qualitative data (Figure 21).

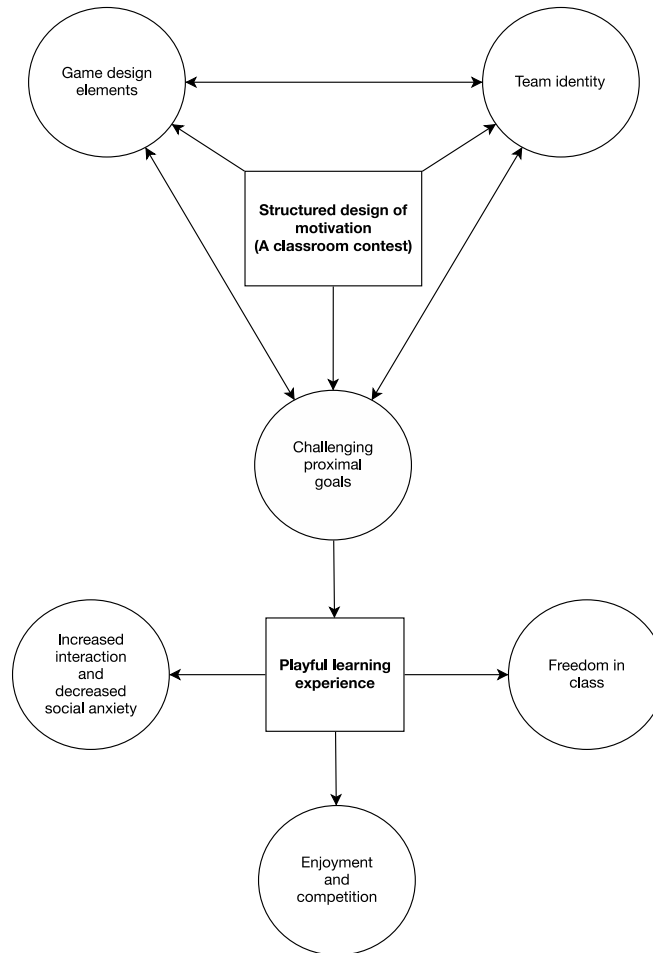


Figure 21 Illustration of the dynamic interaction between the structural elements and the resulting playful learning experience

The third theme that emerged from the focus group interviews analysis was context sensitivity. Elements in a complex system (i.e., the GDMC educational intervention) that aim to raise students' motivation in a classroom setting should be bound by the context of implementation. Students' descriptions of their learning experiences indicated that motivational elements in GDMCs had a mostly positive impact because they targeted elements that the students viewed as demotivational or contrasted with the demotivational conditions found in their current context of regular English classes. For example, students

reported that boredom and passive learning were factors that impacted their motivation negatively in their regular classes. Therefore, the introduction of game design elements that created competition and interaction between students within their teams successfully raised students' motivation because they sharply contrasted with demotivational elements in the study's particular context. Determining elements to be considered when implementing a motivational framework based on DMC theory largely depend on the context of application, thus the intervention designer must be deeply knowledgeable about the context parameters, such as cultural boundaries and students' circumstances, views, and beliefs.

RQ3: What is the construct (i.e. components, conditions, and triggers) of the motivational currents created by the GDMC intervention?

The GDMC intervention successfully created a group motivational current with treatment level 1 classes. However, data analysis shows that the construct of the motivational current created by the GDMC intervention differs from one created by DMCs. As discussed earlier, the reason behind this difference in components, conditions, and triggers between DMCs and GDMCs might be because the two concepts were observed in different contexts (see Chapter 6). A DMC is a motivational phenomenon that occurs naturally and is described by its proponents as a motivational surge observed in individuals who aim to reach a personal distal goal and fulfil a personal future vision which may or may not be educational (Muir and Dörnyei, 2013), while the GDMC is a motivational framework based on DMC theory and implemented as an educational intervention to purposefully create group directed motivational current in a classroom environment.

The present study empirically showed the feasibility of facilitating a high group motivational current in an L2 classroom setting through the GDMC intervention. However, the results also indicated that students' innate desire to reach a personal goal/vision is not always sufficient to create DMCs on the group level, as experiencing such intense levels of motivation needs to be purposefully and intentionally facilitated. Drawing on the qualitative analysis results relating to RQ2, key motivational elements were found to have the strongest impact on L2 motivation according to the students' own perspectives regarding their learning experience. Thus, in the next paragraphs I summarise the GDMC construct (i.e., its components, conditions, and triggers).

As discussed in the literature review, the first component of DMCs was a distal goal and/or future personal vision and a series of subgoals or routine tasks. DMC theory does not differentiate between distal and proximal goals as sources of motivation. However, in GDMCs the students reported that they were much more motivated by a series of gamified short-term goals. These short-term goals were presented in the intervention as weekly competitive and challenging activities that relate to objectives of their mandatory textbook and leads to a distal goal (i.e., winning the contest at the end of the motivational current). This finding is consistent with those of other studies in goal-setting theory (discussed in Section 6.5.1) which found that short-term goals become much more motivating when they are designed to be challenging yet attainable and as part of pathway that leads to a long-term goal (Chen et al., 2020; Lee and Bong, 2019) In other words, (as discussed in Section 6.5.1) it is important to situate the gamified short-term goals of skill mastery within a goal-oriented theory of motivation that leads to L2 proficiency as a long-term goal (Han and Lu, 2018).

The second component of DMCs focused on its salient and facilitative structure formed by clear start and end points of the entire current and a series of repetitive routine tasks that serve as regular checkpoints that provide affirmative feedback as a result of progress. Students in the current study provided similar descriptions but on the proximal goals level. The salient and facilitative structure in GDMCs was formed as a result of the clear start and end points of the proximal goals. These proximal goals were a series of recurring competitive weekly activities that teams aimed to win as part of the classroom contest (i.e., the GDMC intervention). They also served as regular checkpoints that provide affirmative feedback as a result of linking the activities with the textbook objectives. The third and last component in DMCs was that the motivational experience should be charged with positive emotion prompted by progress towards the distal goal or future vision. In other words, in DMC theory, it is suggested that a person's knowledge that accomplishing monotonous routine tasks would lead to the achievement of his/her long-term goal or the realisation of a personal future vision of themselves makes performing such repetitive tasks enjoyable. Data in the present study showed that in a classroom setting, positive emotions were also an important part of the motivational experience created by the GDMC intervention; more specifically, emotions of playfulness and enjoyment. However, unlike DMCs, positive emotions in GDMCs had a different source. Feelings of enjoyment in GDMCs arose from performing the immediate gamified task of participating in a friendly competition involving challenging activities to gain rewards.

In order for the components of a motivational construct to effectively raise students' motivation, certain conditions must be met and a suitable trigger must be found to start the motivational current. The conditions for an individual to enter a high motivational

current in a DMC are that he/she must have a well-defined goal and/or personal vision, be open to the DMC experience, and have a sense of ownership and control over it. In the current study, a few students stated that they were not motivated by the GDMC intervention, although they recognised its motivational and educational benefits (see Chapter 5), because they were just not interested in trying new activities or were satisfied with their regular learning experience. It seems that the idea of participating in a classroom contest was not appealing to them. Therefore, I conclude that to successfully create group GDMCs in a classroom setting, students must be open to participating in a series of challenging activities with a clear purpose (such as winning points and climbing the leaderboard, in the case of my intervention design) within a team that has a strong identity as preconditions for entering a state of high motivational current.

Once the conditions of a motivational system align, a suitable trigger can initiate the motivational current. Because the DMC theory construct is a motivational phenomenon observed in real-life situations (i.e. outside a classroom), ‘triggering stimuli for DMCs can be of a diverse nature’ (Dörnyei et al., 2015b, p. 69). Such triggers can range from, ‘not surprisingly, coming across an attractive opportunity’ to having a ‘negative experience, such as initial failure, embarrassment, disappointment, or humiliation’ (Dörnyei et al., 2015b, 67). In the classroom context, I found that students’ initial interest in the contest was triggered by their desire to *break the routine* of their regular English classes. GDMCs were initiated through creating excitement by using game design elements. These sharply contrasted with students’ classroom norms, which they described as ‘demotivational,’ ‘non-interactive,’ and ‘boring.’

7.3 Significance of Research Findings

As discussed in Chapter 2, the lack of a practical framework to operationalise DMC theory was regarded as a gap in L2 motivation research. Consequently, in this study, the GDMC framework was presented and tested as a potential structure to create and sustain high motivational currents at the group level in an L2 classroom environment. Generally, the findings from the present study contribute to the current L2 motivation literature by, first, lending further support to the validity of the recent call for approaching L2 motivation as a complex dynamic system (CDS) that has dynamic and temporal aspects and, second, by providing valuable insight regarding the methodological tools that may be used to investigate L2 motivation as a CDS. In the following sections, I discuss the methodological and theoretical contribution and pedagogical implications of the study's results in more details.

7.3.1 Methodological contribution

The present study demonstrates the usefulness of using motivation-tracking graphs in examining the temporal aspect of motivation. The use of motivation-tracking graphs allowed me to visually depict fluctuations in students' motivation over the course of the GDMC intervention implementation process in the form of motivation trendlines. Tracking changes in motivation over time answers the call of many researchers (such as Dörnyei [2000, 2002, 2003], Williams and Burden [1997], Ushioda [1994, 1996], and Dörnyei and Ottó [1998]) to include the temporal aspect of L2 motivation as an integral part of L2 motivation research.

However, as mentioned earlier, although several studies have effectively used motivation-tracking graphs in L2 motivation research, there is a lack of discussion of the inner workings of this instrument. It is hoped that this study will add to research that uses motivation-tracking graphs to investigate changes in L2 motivation and thus allow for a more comprehensive overview of this method.

Moreover, the present study contributes to the very limited literature that supports using retrodictive qualitative modelling to explore L2 motivation. Taking a retrodictive qualitative modelling approach to L2 motivation research is particularly helpful with the current view of L2 motivation as a complex dynamic system (Schug and Le Cor, 2017) as it 'reverses the usual research direction by starting at the end – the system outcomes – and then tracing back to see why certain components of the system ended up with one outcome option and not another' (Dörnyei, 2014, p. 80). In other words, instead of approaching L2 motivation research as cause-and-effect relationship between a motivational element and its perceived impact, a retrodictive model is applied to investigate where the motivational power lays in a motivational system that consists of multiple components. For example, in a causal relationship study, an element that is perceived to hold motivational power such as collaborative work is introduced to a regular classroom in as much isolation from the influence of other motivational elements as possible and then its impact on student's motivation is measured, often through a pre- and post-test methodological design. In the current study, I employed retrodictive qualitative modelling to explore the motivational affordances of the GDMC framework as a complex dynamic system by analysing the motivational experience outcomes in order to trace back the system's components and their impact on motivation, and to explore how the system produced positive or negative results.

7.3.2 Theoretical contribution

As discussed in Chapter 2, the proponents of DMCs suggested that teachers already have the tools to enhance students' motivation by operationalising DMC theory and label these tools as 'language teacher experience' (Dörnyei and Kubanyiova, 2014, p. 72). However, the authors did not provide a detailed description of how to use this 'language teacher experience' in a practical framework in a classroom environment. As mentioned in Chapter 2, Dörnyei et al. (2015b) suggest seven frameworks for focused interventions based on DMC theory. However, to the best of my knowledge, there are a limited number of studies that empirically examine these frameworks as a complex dynamic system (discussed in Chapter 2). In my study, I designed and tested the GDMC as framework to operationalise DMC theory and examined the temporal and dynamic aspects of motivation, thus adding to the knowledge of L2 motivation. Therefore, the main theoretical contribution of the current study is empirically testing DMC theory in an L2 classroom setting and providing original evidence that shows that DMC theory can be successfully used to create a group motivational current in a classroom setting. Another theoretical contribution is that the current study viewed L2 motivation as a CDS and examined its dynamic and temporal aspects concurrently and compared and contrasted data that relates to each aspect. The current study adds to the scarce literature that investigates both the temporal and dynamic aspects of L2 motivation in a classroom setting.

The differences between the trendlines depicted in the three participating groups' motivation-tracking graphs confirm the description of an increasing motivational current

on the group level which adds empirical support to the mostly not empirically tested DMC research that mainly describes DMCs as instances of intense motivational experiences that occur on an individual level. The ability to visually observe changes in motivation through trendlines can provide helpful insights for future studies seeking to implement the GDMC framework or other alternative implementations of DMC theory in a classroom setting by providing references for comparison. In other words, comparing the shapes of trendlines in different studies may aid researchers in examining the effectiveness, sustainability, and motivational power of various motivational interventions by detecting points of high and low motivation over time.

I implemented a motivational system (as opposed to using isolated motivational elements) in the form of a competitive classroom contest that contains game design elements and challenging activities. The implemented GDMC motivation system has multiple motivational elements that are interlinked and their functions depend on one another. The GDMC model can be seen as an example of a framework built on DMC theory that successfully created a group motivational current in an L2 classroom. As discussed in the previous section, GDMCs view motivation as a CDS that has several components. Therefore, to raise students' L2 motivation, a context-sensitive motivational system should be implemented instead of injecting motivational elements in the learning experience. Such a system should depend on the characteristics of the context of application. For example, data from this study shows that the GDMC intervention successfully raised students' motivation because it sharply contrasted with students' regular classes.

7.3.3 Pedagogical implications

The findings of my study have pedagogical implications as well. Based on my experience in the current study and in line with Dörnyei and Kubanyiova's (2014) suggestion, I recommend that teachers experiment with different motivational systems that are, first, built on DMC theory and, second, provide a change to the status quo of the context of application. The intervention designer must be familiar with the context of application to determine which components are appropriate and would appeal to the students and thus generate the needed change. This is why I am directing my recommendation to L2 teachers to test and examine different frameworks similar to the GDMC framework in different contexts, as teachers are usually the most familiar with their classroom environment. In my view, the accumulation of studies that focus on viewing L2 motivation as a CDS and test motivational frameworks on this basis would provide valuable information for teachers, which would aid them when designing motivational interventions in the future. Such research would lead to identifying a variety of components that can form numerous motivational interventions, aiding in understanding which components are compatible with each other and suitable to be applied in each context. For example, the current study showed that students needed change from their routine regular classes and participating in the classroom contest was effective in providing a challenging and enjoyable learning experience. By doing so, the study highlighted elements perceived by the students to have the most motivational power in their context and put more focus on conditions perceived to facilitate group GDMCs in the classroom environment.

Another pedagogical implication focuses on the GDMC framework specifically. Unlike most previous DMC-related studies, in this research I explored the theory's application

in an L2 classroom rather than observing it outside the classroom. Moreover, in my study participants were university students who attended regular language classes rather than individuals who experienced DMCs in different aspects of life, educational or otherwise. Thus, the findings of the current study are most applicable to the implementation of the GDMC framework in university-level students in Saudi Arabia. However, as discussed earlier the GDMC model can be, arguably, modified to be applied to other classroom contexts.

In this study I discussed GDMCs' overall structure, core components, conditions, and triggers while explaining how the GDMC framework successfully created a group DMC. However, four major findings concerning GDMCs were identified during the intervention implementation process. These findings are important for classroom application, thus, in the following paragraphs, I discuss them in more depth so that teachers attempting to employ GDMCs are aware of these issues and can modify their motivational frameworks to suit the context of the application.

First, the elements that make the GDMC intervention different from regular classes must be carefully considered to avoid applying them on top of the demotivational elements that already exist in regular classes. For example, students reported that they feel that they do not have the chance to interact with each other, be creative or make mistakes in regular classes because they are graded. The focus group interviews showed that students refused to implement the contest in their regular classes because they were worried it might affect their grades. It seems that students were concerned regarding any changes that might blur the clear paths through which they acquire grades. Such views made it obvious that one of the reasons GDMCs raised students' motivation was because it contrasted with and

was applied separately from their graded classes, even though the students described them as demotivational. In other words, I found that the GDMC intervention can be viewed as a tool to create a group motivational current in a classroom setting, but its ability to diminish the effect of demotivational elements found in regular classes remains to be determined. Therefore, a GDMC-based classroom contest should be applied alongside the regular classes where grades are acquired and be contrasted with them by being friendly, interactive and allowing for mistakes to create a playful learning experience, otherwise it might be considered as the same as regular L2 classes by the students. However, it is important to note that, as discussed in Chapter 5, qualitative data showed that most students recognised the educational benefit of the intervention and stated that the GDMC learning experience led to serious learning and therefore supported the learning process in their regular classes.

The second finding relates to activities in GDMCs. I found that activities (i.e., proximal goals) should be challenging, enjoyable to perform, and linked to the objectives of the regular classes. Activities in the contest must act as checkpoints that provide the students with affirmative feedback on their learning by supporting the language learning objectives in their textbooks. During the focus group interviews, students asserted that performing relatively challenging activities that focus on the same linguistic objectives they need to study in the textbook in their regular classes made them aware of their L2 level, thus motivating them to study more. This can be seen in students' statements such as, 'I am familiar with a lot of the vocabulary that I've heard today, but I didn't know their meanings, so I need to go back and look them up,' 'I felt that students who didn't win would go back and revise more or study more so that hopefully next time they can win,' and, 'I answered a few of the questions. I also need to do some light revision.' In

addition to this, in the focus group interviews, there was a discussion among the students about the difficulty of the activities and most students stated that activities must be somewhat challenging to accomplish to avoid trivialising the contest. Teachers know their students' L2 level best and can design challenging activities that are appropriate to students' L2 level.

Third, although DMC theory postulates that motivation is generated from focusing on achieving distal goals and future visions, the findings from this study suggest that in a classroom environment L2 motivation stems from focusing on performing and achieving the immediate tasks (i.e., the proximal goals). During the focus group interviews, most students stated that they enjoyed performing the weekly activities because they promoted competition by being a challenging and rewarding component of the GDMC learning experience. In the contest, accomplishing activities was made to be rewarding in two ways: students' desire to accumulate points and thus be featured on the contest's leaderboard and positive emotions resulting from being recognised as the week's winning team. Based on the above discussion, I recommend that in a classroom setting, teachers should couple proximal goals in the motivational intervention with immediate rewards and not depend on the positive feelings generated from the knowledge that accomplishing a series of proximal goals would lead toward a distal goal or future vision as the main source of motivation.

After considering the previous findings in this section, a fourth major finding emerges. The findings of the current study that relate to the GDMC framework application suggest that the ability of the GDMC intervention to create a group motivational current is highly dependent on the context of application. Before attempting the utilisation of GDMCs in

general, there are two elements to be considered in any context: its characteristics and parameters, and the learner.

As discussed in Chapter 1, due to my professional background I was very familiar with the study's context. Thus, while designing the GDMC intervention, the characteristics and parameters of the contexts were carefully considered. For example, game design elements were employed specifically to contrast with the 'boring' and passive regular L2 classes. This illustrates that teachers need to understand what is causing the context to be demotivational and, once such elements are identified, an intervention plan that takes into consideration the dynamic and temporal aspects of L2 motivation can be designed and implemented.

The learner is regarded as the most complex and diverse part of the context. One advantage of GDMCs is that they take the social context dimension, which is a key part of the dynamic nature of L2 motivation, into consideration. For example, the homogenous nature of the participants in the current study (i.e., all were 18 to 19-year-old male university students from Saudi Arabia who spoke Arabic as their first language and were grouped into classes according to their English-language levels) was taken into consideration when designing the proximal goals as competitive weekly activities where teams of students compete against each other in treatment level 1. As a result, students within those teams reported that they experienced an increase in social interaction and a decrease in social anxiety compared to their counterparts in treatment level 2, who experienced the same activities without the element of competition. Moreover, human traits have an apparent effect on the learning experience, including students' motivation levels. For example, concerning the impact of L2 level on motivation, Tatsumoto (2011,

p. 8) states that low achievers in the context of L2 learning at Japanese universities have become a social problem which results in low levels of motivation among students as 'low ability leads to low expectancy and it generates low motivation.' Another factor that relates to learners and can strongly impact L2 motivation is cultural orientation towards language anxiety versus willingness to communicate in L2 (Fujii, 2021). For example, Matsuoka and Evans (2005) report that communication anxiety in L2 among Japanese learners is the highest when compared with that of other Asian countries. Matsuoka (2008) further states that in the Japanese college context, apprehension was found to be the strongest factor in decreasing students' willingness to communicate in English. In my study, learners' characteristics and traits led the choice to design the intervention as a classroom contest and they should lead design decisions in future similar studies.

In my view, the GDMC framework could be implemented in similar contexts and may generate similar results; however, it is not general enough to include the complexity of the learners. Therefore, although the current study added to L2 motivation literature in general and to the applications of DMC theory in the Saudi university context, I believe that testing the GDMC motivational system in a variety of contexts and adjusting it according to learners' characteristics and the cultural norms of the contexts of application would result in a valuable contribution to the theoretical and practical aspects of L2 teaching and learning. By adding to the body of studies that support the validity of DMC theory, the results of the current study may encourage researchers and language teachers to experiment empirically with a variety of frameworks that are built on DMC theory.

7.4 The study's limitations

The results of this study provided clear evidence of the GDMC framework's ability to operationalise DMC theory by creating powerful group motivational currents. However, the study has some contextual and methodological limitations. Thus, in this section I describe the study's shortcomings regarding its methodological choices and findings.

As with most similar studies that examine the nature of L2 motivation, the scope of the present study was necessarily limited to a specific context. This raises concerns about the generalisability of conclusions drawn from my study's findings. As discussed earlier, due to the current segregation of female and male students in the Saudi education system, the sample was limited to male students in the foundation-year programme at Umm al-Qura University in Saudi Arabia. Such an unavoidable limitation may restrict the current study's findings from being applicable and generalisable to other universities in the region or elsewhere in the world that have gender mixed classes. Another factor that may hinder the application and generalisation of the findings is the size of the sample recruited in the study ($n = 100$) who completed 11 focus group interviews, 84 motivation-tracking graphs, and 228 questionnaires. Nonetheless, the primary aim of this study was not to produce a universal framework for raising L2 motivation but to, first, show that DMC theory can be successfully operationalised in an L2 classroom setting through the use of game design elements and, second, to gain a deeper and comprehensive understanding of the dynamic and temporal aspects of the group motivational current generated by the GDMC intervention.

Another limitation of the study relates to the data collection period. Due to institutional restrictions, the GDMC intervention was applied during one academic term, which prevented me from uncovering any long-term motivational and educational effects of GDMCs. As discussed earlier, unlike DMCs, in which motivation is generated by focusing on a distal goal or a future vision, the main source of L2 motivation in GDMCs is the competition during performing the weekly proximal goals created by the incorporation of game design elements. Research found that the high levels of engagement caused by gamification often fade away once the novelty of game design elements wears off (Koivisto and Hamari, 2014; Mollick and Rothbard, 2014), and that engagement fades away exceptionally quickly if all aspects of the educational contexts are gamified (Hanus and Fox, 2015). To this end, van Roy and Zaman (2015 as cited in Faiella and Ricciardi, 2015, p. 17) argue that ‘the use of a long-term perspective in this field becomes indispensable with the purpose of investigate the novelty effect.’

Although the GDMC intervention made students reflect on their study progress and L2 level in comparison with their peers, which is a clear educational benefit, its impact on students’ second language development has yet to be demonstrated. Several reasons prevented measuring students’ L2 development in the current study. The scope of the present study kept me from focusing on L2 development as it was not within the main foci of this study. Additionally, the short time of data collection (one academic term) meant that students were sometimes not available for testing, especially at the end of the term when they were studying for their final exams. The importance of investigating the effects of most types of interventions over time is well established in the language education literature to detect what Barnett (2011, p. 976) calls “‘sleeper effects” or delayed effects that appear later in life despite the fade-out of initial cognitive gains.’

Moreover, Mellow et al. (1996, p. 327) assert that in order to observe trends created by the impact of an L2 intervention ‘research methods must be able to evaluate temporal changes, including changes that may be immediate, gradual, delayed, incubated, or residual.’

Moreover, the segregation of genders in the study’s context prevented me from examining the role gender may play when applying the GDMC intervention. According to Shahbaz et al. (2017, p. 221), ‘The associations of gender and L2 acquisition, performance, achievement and motivation have been well documented in the literature.’ Many ‘empirical studies from different sociocultural contexts have, with few exceptions, revealed systematic gender differences in L2 motivation’ in particular (Henry, 2011, p. 81).

Findings from previous studies showed that, in general, males have a lower interest in L2 learning than females. For instance, males are generally less motivated to learn an L2 (Williams et al., 2002) and do not show the same level of commitment to L2 learning as females (Dörnyei et al., 2006), who show more engagement in language activities (Lynn and Mikk, 2009). Another example can be seen in Coleman et al.’s (2007) large-scale study of the L2 motivation which included over 10,000 school students in the United Kingdom and found that girls habitually perform better than boys on various aspects of motivation. Similar results were found in the Korean context, where Kim and Kim (2011) found that males are inclined to be less motivated to learn an L2 than females; and in the Japanese context, where Inada (2021) found that females have perfectionist traits when it comes to L2 learning and have studied English longer than their male counterparts. Finally, the same situation was found in the context of the current study (i.e., university-

level students in Saudi Arabia). Javid et al., (2012) conducted a study that included 709 university-level participants in Saudi Arabia and concluded that, for the most part, female students had higher levels of intrinsic and extrinsic motivation compared to their male counterparts. Furthermore, results from Altalib shortcomings study (2019, p. 4), which involved 4,043 L2 students from four Saudi universities who completed an online survey, showed that female students had higher ideal L2 self, which is a motivational component that relates to the classical concept of intrinsic and integrative motivation—a strong ideal L2 self leads to a robust motivational construct to engage with the L2 (for more on the L2 motivational self-system, see Dörnyei, 2009). Therefore, some findings from this study may not apply to female learners.

7.5 Suggestions for future research

As a complex dynamic system, apparently inconsequential details of L2 motivation could potentially have a substantial impact on the implementation of any motivational intervention, which means that aspiring to find a universal formula for enhancing L2 motivation in any context may be an unproductive approach. However, as a new construct, it would be beneficial to conduct similar studies that aim to operationalise DMC theory in L2 learning in a range of different contexts, especially where students' L2 motivation is perceived to be low. This can be done through game design elements as in the present study or other elements that are more appropriate to the context of application.

In the context of Saudi Arabia, further research that aims to replicate the study's outcome of initiating and sustaining group motivational currents may bring practical benefits by raising students' L2 motivation and theoretical value by augmenting the validity and

reliability of using GDMCs in classroom setting, which would further extend its generalisability to other similar contexts, such as countries in the Arabian Gulf region. In different contexts, however, because L2 motivation is a highly volatile phenomenon by nature, future studies that aim to investigate the use GDMCs in L2 learning should carefully consider the context of application, which includes the context's properties and parameters and learners' attitude and traits (e.g., age and cultural norms) while designing the motivational intervention and make the necessary modifications to the framework accordingly before the implementation of the intervention.

It is imperative for any future studies that aim to employ GDMCs to address the limitations of the present study stated in the previous section. Therefore, I recommend conducting a follow-up study that is, first, long term to investigate GDMCs effect on L2 development through pre- and post-tests, and its delayed motivational effect (e.g., when and why the effect of GDMCs on students' L2 motivation will inevitably start to decrease and fade away), and second, with a larger sample that includes both males and females to explore the impact of gender on the results. Also, similar research is needed with female students to investigate GDMCs effect on them and to explore motivational elements that could replace gamification.

References

- Achinstein, B., Ogawa, R., 2006. (In) fidelity: What the resistance of new teachers reveals about professional principles and prescriptive educational policies. *Harv. Educ. Rev.* 76, 30–63.
- Aggarwal, C.C., 2015. Outlier analysis, in: *Data Mining*. Springer, pp. 237–263.
- Agresti, A., 2018. *Statistical Methods for the Social Sciences*. Pearson.
- Ahmad, J., 2012. Theoretical Framework & Growing Demand of ESP in Saudi Arabia. *Arch. Sci.* 65.
- Al Shlowiy, A., 2014. Lifting motivation level of English learners in Saudi Arabia. *Arab World Engl. J.* 5, 129–136.
- Albalawi, F., 2018. L2 demotivation among Saudi learners of English: the role of the language learning mindsets.
- Aldemir, T., Celik, B., Kaplan, G., 2018. A qualitative investigation of student perceptions of game elements in a gamified course. *Comput. Hum. Behav.* 78, 235–254.
- Alfehaid, A.F.T., 2011. Developing an ESP curriculum for students of health sciences through needs analysis and course evaluation in Saudi Arabia. University of Leicester.
- Alghamdi, A., 2019. Exploring English Language Needs: Business Students' and Teachers' Perspectives in a Saudi Undergraduate Context.
- Alghamdi, M.A., 2019. Exploring non-academic motivational factors which impact English language learning in Saudi Arabia: a qualitative study.
- Al-Hazmi, S., 2003. EFL teacher preparation programs in Saudi Arabia: Trends and challenges. *Tesol Q.* 37, 341–344.
- Al-Hoorie, A., Al Shlowiy, A., 2020. Vision Theory vs. Goal-Setting Theory: A Critical Analysis. *Porta Linguarum*.
- Al-Hoorie, A.H., 2017. Sixty years of language motivation research: Looking back and looking forward. *SAGE Open* 7, 2158244017701976.
- Al-Hoorie, A.H., Hiver, P., 2020. The fundamental difference hypothesis: Expanding the conversation in language learning motivation. *SAGE Open* 10, 2158244020945702.
- AL-Murabit, I.A., 2012. A Closer Look at an English Language Curriculum of a Community College in Saudi Arabia. *Engl. Lang. Teach.* 5, 226–242.
- Al-Roomy, M., 2017. ESP in a Saudi Context: Where Does It Stand? *J. Lang. Teach. Res.* 8, 1109–1115.
- Al-Seghayer, K., 2011. English teaching in Saudi Arabia: Status, issues, and challenges. *Hala*.
- Al-Shehri, A.S., 2009. Motivation and vision: The relation between the ideal L2 self, imagination and visual style. *Motiv. Lang. Identity* L2 Self 164–171.
- Altalib, A., 2019. L2 Motivation in ESP and EGP Courses: An Investigation of L2 Motivational Selves among Learners of English in Saudi Arabia. *Aust. J. Appl. Linguist.* 2, 1–16.
- Aparicio, A.F., Vela, F.L.G., Sánchez, J.L.G., Montes, J.L.I., 2012. Analysis and application of gamification, in: *Proceedings of the 13th International Conference on Interacción Persona-Ordenador*. ACM, p. 17.
- Apostol, S., Zaharescu, L., Alexe, I., 2013. GAMIFICATION OF LEARNING AND EDUCATIONAL GAMES. *Elearning Softw. Educ.*

- Armstrong, A.C., 2008. The fragility of group flow: The experiences of two small groups in a middle school mathematics classroom. *J. Math. Behav.* 27, 101–115.
- Ary, D., Jacobs, L.C., Irvine, C.K.S., Walker, D., 2018. Introduction to research in education. Cengage Learning.
- Asakawa, K., 2004. Flow experience and autotelic personality in Japanese college students: How do they experience challenges in daily life? *J. Happiness Stud.* 5, 123–154.
- Awan, O., Dako, F., 2018. Reply: Use of parametric tests to analyze ordinal data. *J. Nucl. Med. Technol.* 46, 318–318.
- Bailey, K.M., 1983. Competitiveness and anxiety in adult second language learning: Looking at and through the diary studies. *Classr. Oriented Res. Second Lang. Acquis.* 3, 67–102.
- Baki, R., 2004. Gender-segregated education in Saudi Arabia: Its impact on social norms and the Saudi labor market. *Educ. Policy Anal. Arch.* 12, n28.
- Bandura, A., 1986. Social foundations of thought and action. Englewood Cliffs NJ 1986, 23–28.
- Barab, S., Zuiker, S., Warren, S., Hickey, D., Ingram-Goble, A., Kwon, E.-J., Kouper, I., Herring, S.C., 2007. Situationally embodied curriculum: Relating formalisms and contexts. *Sci. Educ.* 91, 750–782.
- Barata, G., Gama, S., Jorge, J., Gonçalves, D., 2013. Engaging engineering students with gamification, in: 2013 5th International Conference on Games and Virtual Worlds for Serious Applications (VS-GAMES). IEEE, pp. 1–8.
- Barnett, W.S., 2011. Effectiveness of early educational intervention. *Science* 333, 975–978.
- Barzilai, S., Blau, I., 2014. Scaffolding game-based learning: Impact on learning achievements, perceived learning, and game experiences. *Comput. Educ.* 70, 65–79. <https://doi.org/10.1016/j.compedu.2013.08.003>
- Baumann, N., 2012. Autotelic personality, in: *Advances in Flow Research*. Springer, pp. 165–186.
- Bazeley, P., 2013. *Qualitative data analysis: Practical strategies*. Sage.
- Birt, L., Scott, S., Cavers, D., Campbell, C., Walter, F., 2016. Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qual. Health Res.* 26, 1802–1811.
- Blohm, I., Leimeister, J.M., 2013. Gamification: Design of IT-based enhancing services for motivational support and behavioral change. *Business & Information Systems Engineering*, 5 (4), 275–278.
- Blumenfeld, P., Fishman, B.J., Krajcik, J., Marx, R.W., Soloway, E., 2000. Creating usable innovations in systemic reform: Scaling up technology-embedded project-based science in urban schools. *Educ. Psychol.* 35, 149–164.
- Blumenfeld, P.C., Soloway, E., Marx, R.W., Krajcik, J.S., Guzdial, M., Palincsar, A., 1991. Motivating project-based learning: Sustaining the doing, supporting the learning. *Educ. Psychol.* 26, 369–398.
- Boo, Z., Dörnyei, Z., Ryan, S., 2015. L2 motivation research 2005–2014: Understanding a publication surge and a changing landscape. *System* 55, 145–157.
- Bradley-Levine, J., Berghoff, B., Seybold, J., Sever, R., Blackwell, S., Smiley, A., 2010. What teachers and administrators “need to know” about project-based learning implementation, in: *Annual Meeting of the American Educational Research Association*. Denver, CO.

- Braun, V., Clarke, V., 2006. Using thematic analysis in psychology. *Qual. Res. Psychol.* 3, 77–101.
- Brinkmann, S., Kvale, S., 2015. *InterViews: Learning the Craft of Qualitative Research Interviewing*.
- Brown, H.D., 1990. M & Ms for language classrooms? Another look at motivation. *Georget. Univ. Round Table Lang. Linguist.* 1990, 383–393.
- Brush, T., Saye, J., 2000. Implementation and evaluation of a student-centered learning unit: A case study. *Educ. Technol. Res. Dev.* 48, 79–100.
- Bryman, A., 2016. *Social research methods*. Oxford university press.
- Burguillo, J.C., 2010. Using game theory and Competition-based Learning to stimulate student motivation and performance. *Comput. Educ.* 55, 566–575. <https://doi.org/10.1016/j.compedu.2010.02.018>
- Busse, V., 2010. *Foreign Language Learning Motivation in Higher Education: A Longitudinal Study on Motivational Changes and their Causes*. (Unpublished doctoral dissertation). University of Oxford.
- Cadic, E., 2016. What is a Trend Line in Math? - Definition, Equation & Analysis [WWW Document]. URL <https://study.com/academy/lesson/what-is-a-trend-line-in-math-definition-equation-analysis.html> (accessed 10.8.20).
- Çeker, E., Özdaml, F., 2017. What" Gamification" Is and What It's Not. *Eur. J. Contemp. Educ.* 6, 221–228.
- ChanLin, L.-J., 2008. Technology integration applied to project-based learning in science. *Innov. Educ. Teach. Int.* 45, 55–65.
- Charmaz, K., 2006. *Constructing grounded theory: A practical guide through qualitative analysis*. sage.
- Chen, X., Lake, J., Padilla, A.M., 2020. Grit and Motivation for Learning English among Japanese University Students. *System* 102411.
- Cheng, H.-F., Dörnyei, Z., 2007. The use of motivational strategies in language instruction: The case of EFL teaching in Taiwan. *Int. J. Innov. Lang. Learn. Teach.* 1, 153–174.
- Cheung Matthew Sung, C., 2013. Learning English as an L2 in the global context: Changing English, changing motivation. *Chang. Engl.* 20, 377–387.
- Clément, R., Dörnyei, Z., Noels, K.A., 1994. Motivation, self-confidence, and group cohesion in the foreign language classroom. *Lang. Learn.* 44, 417–448.
- Cohen, L., Manion, L., Morrison, K., 2017. *Research Methods in Education*. Routledge, London, UNITED KINGDOM.
- Coleman, J.A., Galaczi, Á., Astruc, L., 2007. Motivation of UK school pupils towards foreign languages: a large-scale survey at Key Stage 3. *Lang. Learn. J.* 35, 245–281.
- Condliffe, B., 2017. *Project-Based Learning: A Literature Review*. Working Paper. MDRC.
- Condliffe, B., Quint, J., Visher, M.G., Bangser, M.R., Drohojowska, S., Saco, L., Nelson, E., 2017. *Project-Based Learning*.
- Corbin, J., Strauss, A., 2014. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications.
- Costa, C.J., Aparicio, M., Aparicio, S., Aparicio, J.T., 2017. Gamification usage ecology, in: *Proceedings of the 35th ACM International Conference on the Design of Communication*. ACM, p. 2.
- Creswell, J.W., 2013. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. SAGE Publications.

- Creswell, J.W., Klassen, A.C., Plano Clark, V.L., Smith, K.C., 2011. Best practices for mixed methods research in the health sciences. Bethesda Md. Natl. Inst. Health 2013, 541–545.
- Crookes, G., Schmidt, R.W., 1991. Motivation: Reopening the research agenda. *Lang. Learn.* 41, 469–512.
- Csikszentmihalyi, M., 1990. *Flow: the psychology of optimal experience*, 1st ed. ed. Harper & Row, New York.
- Cugelman, B., 2013. Gamification: what it is and why it matters to digital health behavior change developers. *JMIR Serious Games* 1.
- Daif-Allah, A.S., Alsamani, A.S., 2014. Motivators for Demotivators Affecting English Language Acquisition of Saudi Preparatory Year Program Students. *Engl. Lang. Teach.* 7, 128–138.
- Darling-Hammond, L., 1993. Reframing the school reform agenda; developing capacity for school transformation. *Phi Delta Kappan* 74, 752.
- Darling-Hammond, L., Barron, B., Pearson, P.D., Schoenfeld, A.H., Stage, E.K., Zimmerman, T.D., Cervetti, G.N., Tilson, J.L., Chen, M., 2008. *Powerful Learning: What We Know About Teaching for Understanding*. Wiley.
- Davies, D., Dodd, J., 2002. Qualitative research and the question of rigor. *Qual. Health Res.* 12, 279–289. <https://doi.org/10.1177/104973230201200211>
- de Bot, K., 2015. Rates of change: timescales in second language development. *Motiv. Dyn. Lang. Learn.* 29–37.
- De Bot, K., Lowie, W., Verspoor, M., 2007. A dynamic systems theory approach to second language acquisition. *Biling. Lang. Cogn.* 10, 7–21.
- de Freitas, A.A., de Freitas, M.M., 2013. Classroom Live: a software-assisted gamification tool. *Comput. Sci. Educ.* 23, 186–206.
- de Sousa Borges, S., Durelli, V.H., Reis, H.M., Isotani, S., 2014. A systematic mapping on gamification applied to education, in: *Proceedings of the 29th Annual ACM Symposium on Applied Computing*. ACM, pp. 216–222.
- Deci, E.L., Ryan, R.M. (Eds.), 2013. *Handbook of Self-Determination Research*, Soft Cover Ed edition. ed. University of Rochester Press, Rochester, NY.
- Denscombe, M., 2014. *The good research guide: for small-scale social research projects*. McGraw-Hill Education (UK).
- Deterding, S., Dixon, D., Khaled, R., Nacke, L., 2011a. From game design elements to gamefulness: defining gamification, in: *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments*. ACM, pp. 9–15.
- Deterding, S., Khaled, R., Nacke, L.E., Dixon, D., 2011b. Gamification: Toward a definition, in: *CHI 2011 Gamification Workshop Proceedings*. Vancouver BC, Canada.
- DeVellis, R.F., 2012. *Scale Development: Theory and Applications*, Applied Social Research Methods. SAGE Publications.
- Dicheva, D., Dichev, C., Agre, G., Angelova, G., 2015. Gamification in education: a systematic mapping study. *J. Educ. Technol. Soc.* 18, 75.
- Domínguez, A., Saenz-De-Navarrete, J., De-Marcos, L., Fernández-Sanz, L., Pagés, C., Martínez-Herráiz, J.-J., 2013. Gamifying learning experiences: Practical implications and outcomes. *Comput. Educ.* 63, 380–392.
- Dong, T., Dontcheva, M., Joseph, D., Karahalios, K., Newman, M., Ackerman, M., 2012. Discovery-based games for learning software, in: *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, pp. 2083–2086.

- Dörnyei, Z., 2014a. Researching complex dynamic systems: 'Retrospective qualitative modelling' in the language classroom. *Lang. Teach.* 47, 80–91.
- Dörnyei, Z., 2014b. The psychology of the language learner: Individual differences in second language acquisition. Routledge.
- Dörnyei, Z., 2014c. Researching complex dynamic systems: 'Retrospective qualitative modelling' in the language classroom. *Lang. Teach.* 47, 80.
- Dörnyei, Z., 2009. The L2 motivational self system. *Motiv. Lang. Identity L2 Self* 36, 9–11.
- Dörnyei, Z., 2007. *Research Methods in Applied Linguistics: Quantitative, Qualitative, and Mixed Methodologies*, Oxford Applied Linguistics. OUP Oxford.
- Dörnyei, Z., 2005. The psychology of the language learner: Individual differences in second language acquisition. Mahwah, NJ: Erlbaum.
- Dörnyei, Z., 2003. Attitudes, orientations, and motivations in language learning: Advances in theory, research, and applications. *Lang. Learn.* 53, 3–32.
- Dörnyei, Z., 2002. The motivational basis of language learning tasks. *Individ. Differ. Instr. Lang. Learn.* 2, 137–158.
- Dörnyei, Z., 2001. *Motivation strategies in the language classroom*. Cambridge University Press.
- Dörnyei, Z., 2000. Motivation in action: Towards a process-oriented conceptualisation of student motivation. *Br. J. Educ. Psychol.* 70, 519–538.
- Dörnyei, Z., 1994. Motivation and motivating in the foreign language classroom. *Mod. Lang. J.* 78, 273–284.
- Dörnyei, Z., Chan, L., 2013. Motivation and vision: An analysis of future L2 self images, sensory styles, and imagery capacity across two target languages. *Lang. Learn.* 63, 437–462.
- Dörnyei, Z., Csizér, K., Németh, N., 2006. Motivation, language attitudes and globalisation: A Hungarian perspective. *Multilingual Matters*.
- Dörnyei, Z., Henry, A., MacIntyre, P.D., 2015a. Motivational dynamics in language learning. *Multilingual Matters*.
- Dörnyei, Z., Henry, A., Muir, C., 2015b. *Motivational currents in language learning: Frameworks for focused interventions*. Routledge.
- Dörnyei, Z., Ibrahim, Z., Muir, C., 2015c. Directed Motivational Currents': Regulating complex dynamic systems through motivational surges. *Motiv. Dyn. Lang. Learn.* 95–105.
- Dörnyei, Z., Kubanyiova, M., 2014. *Motivating learners, motivating teachers: Building vision in the language classroom*. Cambridge University Press.
- Dörnyei, Z., Muir, C., Ibrahim, Z., 2014. Directed Motivational Currents': Energising language learning through creating intense motivational pathways, in: *Motivation and Foreign Language Learning: From Theory to Practice*. Amsterdam: John Benjamins, pp. 9–30.
- Dörnyei, Z., Murphey, T., 2003. *Group dynamics in the language classroom*. Ernst Klett Sprachen.
- Dörnyei, Z., Ottó, I., 1998. Motivation in action: A process model of L2 motivation.
- Dörnyei, Z., Ryan, S., 2015. *The psychology of the language learner revisited*. Routledge.
- Dörnyei, Z., Taguchi, T., 2009. *Questionnaires in second language research: Construction, administration, and processing*. Routledge.
- Dörnyei, Z., Ushioda, E., 2013. *Teaching and researching: Motivation*. Routledge.

- Dudley-Evans, T., St John, M.J., Saint John, M.J., 1998. *Developments in English for specific purposes: A multi-disciplinary approach*. Cambridge university press.
- Ejsing-Duun, S., Karoff, H.S., 2014. Gamification of a Higher Education Course: What's the fun in That?, in: *European Conference on Games Based Learning*. Academic Conferences International Limited, p. 92.
- Ellis, N.C., Larsen-Freeman, D., 2006. Language emergence: Implications for applied linguistics—Introduction to the special issue. *Appl. Linguist.* 27, 558–589.
- Elsheikh, F.I.M., Babiker, A.A.A., Abu Alhassan, A.K., 2014. A proposed strategy to improve the Saudi university students' motivation towards learning English as a foreign language. *Am. J. Res. Commun.* 2, 32–50.
- Elyas, T., 2011. Diverging identities: a 'contextualised' exploration of the interplay of competing discourses in two Saudi university classrooms.
- Elyas, T., Picard, M., 2010. Saudi Arabian educational history: Impacts on English language teaching. *Educ. Bus. Soc. Contemp. Middle East. Issues*.
- Erdil-Moody, Z., 2016. *Promoting L2 Motivation via Motivational Teaching Practice: A Mixed-Methods Study in the Turkish EFL Context*. University of South Florida.
- Ertmer, P.A., 2005. Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educ. Technol. Res. Dev.* 53, 25–39.
- Ertmer, P.A., Simons, K.D., 2006. Jumping the PBL implementation hurdle: Supporting the efforts of K–12 teachers. *Interdiscip. J. Probl.-Based Learn.* 1, 5.
- Faiella, F., Ricciardi, M., 2015. Gamification and learning: a review of issues and research. *J. E-Learn. Knowl. Soc.* 11.
- Fang, Z., 1996. A review of research on teacher beliefs and practices. *Educ. Res.* 38, 47–65.
- Field, A., 2013. *Discovering statistics using IBM SPSS statistics*. sage.
- Fitz-Walter, Z., Tjondronegoro, D., Wyeth, P., 2011. Orientation passport: using gamification to engage university students, in: *Proceedings of the 23rd Australian Computer-Human Interaction Conference*. ACM, pp. 122–125.
- Fraenkel, J.R., Wallen, N.E., Hyun, H.H., 2011. *How to design and evaluate research in education*. New York: McGraw-Hill Humanities/Social Sciences/Languages.
- Francisco-Aparicio, A., Gutiérrez-Vela, F.L., Isla-Montes, J.L., Sanchez, J.L.G., 2013. Gamification: Analysis and application, in: *New Trends in Interaction, Virtual Reality and Modeling*. Springer, pp. 113–126.
- Fujii, S., 2021. Relationships Between Foreign Language Anxiety and Willingness to Communicate Among Japanese EFL Learners. *J. Manag. Train. Ind.* 8, 1–12.
- Gaggioli, A., Milani, L., Mazzoni, E., Riva, G., 2011. Networked flow: A framework for understanding the dynamics of creative collaboration in educational and training settings. *Open Educ. J.* 4.
- Gardner, R.C., 1985. *Social psychology and second language learning: The role of attitudes and motivation*. Arnold.
- Gardner, R.C., 1983. Learning another language: A true social psychological experiment. *J. Lang. Soc. Psychol.* 2, 219–239.
- Gardner, R.C., Day, J.B., MacIntyre, P.D., 1992. Integrative motivation, induced anxiety, and language learning in a controlled environment. *Stud. Second Lang. Acquis.* 14, 197–214.
- Gardner, R.C., Lambert, W.E., 1959. Motivational variables in second-language acquisition. *Can. J. Psychol. Can. Psychol.* 13, 266.
- Gardner, R.C., MacIntyre, P.D., 1993. A student's contributions to second-language learning. Part II: Affective variables. *Lang. Teach.* 26, 1–11.

- Gass, S., 2015. Experimental research, in: *Research Methods in Applied Linguistics: A Practical Resource*. Bloomsbury Publishing, pp. 101–117.
- Gibson, D., Ostashewski, N., Flintoff, K., Grant, S., Knight, E., 2013. Digital Badges in Education. *Educ. Inf. Technol.* 1, 1–8.
- Glass, G.V., 1966. Testing homogeneity of variances. *Am. Educ. Res. J.* 3, 187–190.
- Gliem, J.A., Gliem, R.R., 2003. Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. *Midwest Research-to-Practice Conference in Adult, Continuing, and Community ...*
- Golafshani, N., 2003. Understanding Reliability and Validity in Qualitative Research. *Qual. Rep.* 8, 597–606.
- Grant, M.M., 2002. Getting a grip on project-based learning: Theory, cases and recommendations. *Meridian Middle Sch. Comput. Technol. J.* 5, 83.
- Grant, M.M., Hill, J.R., 2006. Weighing the risks with the rewards: Implementing student-centered pedagogy within high-stakes testing. *Underst. Teach. Stress Age Account.* 19–42.
- Greasley, P., 2007. *Quantitative data analysis using SPSS: an introduction for health & social science*. McGraw-Hill Education (UK).
- Guilloteaux, M.J., Dörnyei, Z., 2008. Motivating language learners: A classroom-oriented investigation of the effects of motivational strategies on student motivation. *TESOL Q.* 42, 55–77.
- Hakulinen, L., Auvinen, T., Korhonen, A., 2015. The effect of achievement badges on students' behavior: An empirical study in a university-level computer science course. *Int. J. Emerg. Technol. Learn. IJET* 10, 18–29.
- Hamari, J., 2013. Transforming homo economicus into homo ludens: A field experiment on gamification in a utilitarian peer-to-peer trading service. *Electron. Commer. Res. Appl.* 12, 236–245.
- Hamari, J., Koivisto, J., Sarsa, H., 2014. Does gamification work?--a literature review of empirical studies on gamification, in: *System Sciences (HICSS), 2014 47th Hawaii International Conference On. IEEE*, pp. 3025–3034.
- Hamari, J., Shernoff, D.J., Rowe, E., Coller, B., Asbell-Clarke, J., Edwards, T., 2016. Challenging games help students learn: An empirical study on engagement, flow and immersion in game-based learning. *Comput. Hum. Behav.* 54, 170–179.
- Han, J., Lu, Q., 2018. A Correlation Study among Achievement Motivation, Goal-Setting and L2 Learning Strategy in EFL Context. *Engl. Lang. Teach.* 11, 5–14.
- Hanus, M.D., Fox, J., 2015. Assessing the effects of gamification in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Comput. Educ.* 80, 152–161.
- Henry, A., 2011. Gender differences in L2 motivation: A reassessment.
- Henry, A., Davydenko, S., Dörnyei, Z., 2015. The anatomy of directed motivational currents: Exploring intense and enduring periods of L2 motivation. *Mod. Lang. J.* 99, 329–345.
- Henry, J., 2012. *Teaching through projects*. Routledge.
- Hickey, D.T., 1997. Motivation and contemporary socio-constructivist instructional perspectives. *Educ. Psychol.* 32, 175–193. https://doi.org/10.1207/s15326985ep3203_3
- Hiver, P., Al-Hoorie, A.H., Larsen-Freeman, D., 2021. Toward a transdisciplinary integration of research purposes and methods for Complex Dynamic Systems Theory: Beyond the quantitative–qualitative divide. *Int. Rev. Appl. Linguist. Lang. Teach.*

- Huang, B., Hew, K.F., 2018. Implementing a theory-driven gamification model in higher education flipped courses: Effects on out-of-class activity completion and quality of artifacts. *Comput. Educ.*
- Huotari, K., Hamari, J., 2017. A definition for gamification: anchoring gamification in the service marketing literature. *Electron. Mark.* 27, 21–31.
- Husman, J., Lens, W., 1999. The role of the future in student motivation. *Educ. Psychol.* 34, 113–125.
- Hutchinson, T., Waters, A., 1987. *English for specific purposes*. Cambridge university press.
- Ibrahim, R., Yusoff, R.C.M., Omar, H.M., Jaafar, A., 2010. Students perceptions of using educational games to learn introductory programming. *Comput. Inf. Sci.* 4, 205.
- Ibrahim, Z., Al-Hoorie, A.H., 2018. Shared, sustained flow: triggering motivation with collaborative projects. *ELT J.*
- Ibrahim, Z.I., 2016. *Directed motivational currents: optimal productivity and long-term sustainability in second language acquisition*. University of Nottingham.
- Inada, T., 2021. Are There Gender Differences in Anxiety and Any Other Factors among English as a Foreign Language (EFL) College Students in Japan? *Int. Med. J.* 28.
- Javid, C.Z., Al-Asmari, A., Farooq, U., 2012. Saudi undergraduates' motivational orientations towards English language learning along gender and university major lines: A comparative study. *Eur. J. Soc. Sci.* 27, 283–300.
- Jenner, B., Flick, U., von Kardoff, E., Steinke, I., 2004. *A companion to qualitative research*. Sage.
- Juul, J., 2011. *Half-Real: Video Games Between Real Rules and Fictional Worlds*. MIT Press.
- Kapp, K.M., 2012. *The gamification of learning and instruction: game-based methods and strategies for training and education*. John Wiley & Sons.
- Kapp, K.M., Mesch, R., Blair, L., 2014. *The gamification of learning and instruction fieldbook: ideas into practice*.
- Karmani, S., 2005. TESOL in a time of terror: Toward an Islamic perspective on applied linguistics. *TESOL Q.* 39, 738–744.
- Kasurinen, J., Knutas, A., 2018. Publication trends in gamification: A systematic mapping study. *Comput. Sci. Rev.* 27, 33–44.
- Khan, I.A., 2011. Challenges of teaching/learning English and management. *Glob. J. Hum.-Soc. Sci. Res.* 11.
- Kim, Y.-K., Kim, T.-Y., 2011a. The effect of Korean secondary school students' perceptual learning styles and ideal L2 self on motivated L2 behavior and English proficiency. *Korean J. Engl. Lang. Linguist.* 11, 21–42.
- Kim, Y.-K., Kim, T.-Y., 2011b. Gender Differences in Korean Secondary School Students' Learning Styles and L2 Motivation. *외국어교육* 18, 51–71.
- Kinnear, P., Gray, C., 2006. *SPSS 12 made simple*. Psychology press.
- Knautz, K., Wintermeyer, A., Orszulok, L., Soubusta, S., 2014. From Know That to Know How – Providing New Learning Strategies for Information Literacy Instruction, in: Kurbanoglu, S., Špiranec, S., Grassian, E., Mizrahi, D., Catts, R. (Eds.), *Information Literacy. Lifelong Learning and Digital Citizenship in the 21st Century*, Communications in Computer and Information Science. Springer International Publishing, pp. 417–426.
- Koivisto, J., Hamari, J., 2014. Demographic differences in perceived benefits from gamification. *Comput. Hum. Behav.* 35, 179–188.

- Kong, J.H., Han, J.E., Kim, S., Park, Hunil, Kim, Y.S., Park, Hyunjoo, 2018. L2 Motivational Self System, international posture and competitiveness of Korean CTL and LCTL college learners: A structural equation modeling approach. *System* 72, 178–189.
- Krajcik, J.S., Shin, N., 2014. Project-Based Learning, in: *The Cambridge Handbook of the Learning Sciences*. <https://doi.org/10.1017/CBO9781139519526.018>
- Krueger, R.A., Casey, M.A., 2014. *Focus groups: A practical guide for applied research*. Sage publications.
- Kubanyiova, M., 2009. 16. Possible Selves in Language Teacher Development, in: *Motivation, Language Identity and the L2 Self*. *Multilingual Matters*, pp. 314–332.
- Kvale, S., 1994. *Interviews: An introduction to qualitative research interviewing*. Sage Publications, Inc.
- Kvale, S., Brinkmann, S., 2009. *InterViews: Learning the Craft of Qualitative Research Interviewing*. SAGE Publications.
- Lamb, M., 2004. Integrative motivation in a globalizing world. *System* 32, 3–19.
- Landers, R.N., Bauer, K.N., Callan, R.C., 2017. Gamification of task performance with leaderboards: A goal setting experiment. *Comput. Hum. Behav.* 71, 508–515.
- Lapadat, J.C., Lindsay, A.C., 1999. Transcription in research and practice: From standardization of technique to interpretive positionings. *Qual. Inq.* 5, 64–86.
- Larmer, J., Mergendoller, J.R., Boss, S., 2015. Gold standard PBL: Essential project design elements. *PBL Blog*.
- Larsen-Freeman, D., 1997. Chaos/complexity science and second language acquisition. *Appl. Linguist.* 18, 141–165.
- Larsen-Freeman, D., Cameron, L., 2008. Research methodology on language development from a complex systems perspective. *Mod. Lang. J.* 200–213.
- Lasane, T.P., Jones, J.M., 1999. Temporal orientation and academic goal-setting: The mediating properties of a motivational self. *J. Soc. Behav. Personal.* 14, 31.
- Latham, G.P., Seijts, G.H., 1999. The effects of proximal and distal goals on performance on a moderately complex task. *J. Organ. Behav.* 421–429.
- LeCompte, M.D., Millroy, W.L., Preissle, J., 1992. *The Handbook of Qualitative Research in Education*. Academic Press.
- Lee, A.M.I., 2017. What Is Instructional Intervention? *Academic Intervention, RTI Approach [WWW Document]*. URL <https://www.understood.org/en/learning-attention-issues/treatments-approaches/educational-strategies/instructional-intervention-what-you-need-to-know> (accessed 5.11.19).
- Lee, J.J., Hammer, J., 2011. Gamification in education: What, how, why bother? *Acad. Exch. Q.* 15, 146.
- Lee, M., Bong, M., 2019a. Relevance of goal theories to language learning research. *System* 86, 102122.
- Lee, M., Bong, M., 2019b. Relevance of goal theories to language learning research. *System* 86, 102122.
- Lincoln, Y.S., Guba, E.G., 1985. *Naturalistic Inquiry*. SAGE Publications.
- Linnenbrink, E.A., Pintrich, P.R., 2002. Achievement goal theory and affect: An asymmetrical bidirectional model. *Educ. Psychol.* 37, 69–78.
- Linnenbrink-Garcia, L., Tyson, D.F., Patall, E.A., 2008. When are achievement goal orientations beneficial for academic achievement? A closer look at main effects and moderating factors. *Rev. Int. Psychol. Soc.* 21, 19–70.

- Lynn, R., Mikk, J., 2009. Sex differences in reading achievement. *TRAMES J. Humanit. Soc. Sci.* 13.
- Lyubomirsky, S., Sheldon, K.M., Schkade, D., 2005. Pursuing happiness: The architecture of sustainable change. *Rev. Gen. Psychol.* 9, 111.
- MacIntyre, P.D., Legatto, J.J., 2010. A dynamic system approach to willingness to communicate: Developing an idiodynamic method to capture rapidly changing affect. *Appl. Linguist.* 32, 149–171.
- Mackey, A., Gass, S.M., 2005. *Second language research : methodology and design.* Lawrence Erlbaum Associates.
- Mahboob, A., Elyas, T., 2014. English in the kingdom of Saudi Arabia. *World Englishes* 33, 128–142.
- Mahib ur Rahman, M., Alhaisoni, E., 2013. Teaching English in Saudi Arabia: prospects and challenges. *Acad. Res. Int.* 4, 112.
- Makrami, B.H., 2010. Motivation and attitude of Saudi university's learners of English for specific purposes. University of Kansas.
- Matsuoka, R., 2008. Communication Apprehension among Japanese College Students. *J. Pan-Pac. Assoc. Appl. Linguist.* 12, 37–48.
- Matsuoka, R., Evans, D.R., 2005. Willingness to communicate in the second language. *J. Nurs. Stud.* 4, 3–12.
- McHugh, M.L., 2012. Interrater reliability: the kappa statistic. *Biochem. Medica Biochem. Medica* 22, 276–282.
- McNamara, C., 2011. General Guidelines for Conducting Research Interviews [WWW Document]. URL <https://managementhelp.org/businessresearch/interviews.htm> (accessed 4.14.19).
- McNeill, K.L., Lizotte, D.J., Krajcik, J., Marx, R.W., 2006. Supporting students' construction of scientific explanations by fading scaffolds in instructional materials. *J. Learn. Sci.* 15, 153–191.
- Mellow, J.D., Reeder, K., Forster, E., 1996. USING TIME-SERIES RESEARCH DESIGNS TO INVESTIGATE THE EFFECTS OF INSTRUCTION ON SLA. *Stud. Second Lang. Acquis.* 18, 325–350.
- Meyer, D.K., Turner, J.C., 2006. Re-conceptualizing Emotion and Motivation to Learn in Classroom Contexts. *Educ. Psychol. Rev.* 18, 377–390. <https://doi.org/10.1007/s10648-006-9032-1>
- Mikami, Y., 2020. Goal setting and learners' motivation for extensive reading: Forming a virtuous cycle.
- Mollick, E.R., Rothbard, N., 2014. Mandatory fun: Consent, gamification and the impact of games at work. *Whart. Sch. Res. Pap. Ser.*
- Morisano, D., 2013. Goal setting in the academic arena, in: *New Developments in Goal Setting and Task Performance.* Routledge, pp. 519–530.
- Muir, C., 2020. Directed motivational currents and language education: Exploring implications for pedagogy. *Multilingual Matters.*
- Muir, C., 2016. The dynamics of intense long-term motivation in language learning: Directed Motivational Currents in theory and practice. University of Nottingham.
- Muir, C., Dörnyei, Z., 2013. Directed motivational currents: Using vision to create effective motivational pathways. *Stud. Second Lang. Learn. Teach.* 3, 357–375.
- Nacke, L.E., Deterding, S., 2017. The maturing of gamification research. *Comput. Hum. Behav. Complete*, 450–454. <https://doi.org/10.1016/j.chb.2016.11.062>

- Nah, F.F.-H., Zeng, Q., Telaprolu, V.R., Ayyappa, A.P., Eschenbrenner, B., 2014. Gamification of education: a review of literature, in: *International Conference on Hci in Business*. Springer, pp. 401–409.
- Nakamura, J., Csikszentmihalyi, M., 2002. The concept of flow, in: *Handbook of Positive Psychology*. Springer, pp. 89–105.
- New York City Department of Education, 2009. Project-based learning: Inspiring middle school students to engage in deep and active learning. URL http://blog.ncue.edu.tw/sys/lib/read_attach.php?id=11950 (accessed 5.25.19).
- Nicholson, S., 2015. A RECIPE for Meaningful Gamification, in: *Gamification in Education and Business*. Springer, Cham, pp. 1–20. https://doi.org/10.1007/978-3-319-10208-5_1
- Nicholson, S., 2013a. Two paths to motivation through game design elements: reward-based gamification and meaningful gamification.
- Nicholson, S., 2013b. Exploring gamification techniques for classroom management. *Games Learn. Soc.* 9.
- Nicholson, S., 2012a. A User-Centered Theoretical Framework for Meaningful Gamification 7.
- Nicholson, S., 2012b. Strategies for meaningful gamification: Concepts behind transformative play and participatory museums. *Meaningful Play*.
- Nitta, R., Asano, R., 2010. Understanding motivation-in-action from a dynamic systems approach. *Nagoya Gakuin Daigaku Ronshu* 21, 37–49.
- Noels, K.A., 2001. New orientations in language learning motivation: Towards a model of intrinsic, extrinsic, and integrative orientations and motivation, in: *Motivation and Second Language Acquisition*. pp. 43–68.
- Noels, K.A., Pelletier, L.G., Clément, R., Vallerand, R.J., 2000. Why are you learning a second language? Motivational orientations and self-determination theory. *Lang. Learn.* 50, 57–85.
- Norman, G., 2010. Likert scales, levels of measurement and the “laws” of statistics. *Adv. Health Sci. Educ.* 15, 625–632.
- Oxford, R., Shearin, J., 1994. Language learning motivation: Expanding the theoretical framework. *Mod. Lang. J.* 78, 12–28.
- Pallant, J., 2013. *SPSS survival manual*. McGraw-Hill Education (UK).
- Paltridge, B., Starfield, S., 2014. *The handbook of English for specific purposes*. John Wiley & Sons.
- Park, H.M., 2009. Comparing group means: t-tests and one-way ANOVA using Stata, SAS, R, and SPSS.
- Patton, M.Q., 2002. *Qualitative Research & Evaluation Methods*. SAGE Publications.
- Pekrun, R., Goetz, T., Frenzel, A.C., Barchfeld, P., Perry, R.P., 2011. Measuring emotions in students’ learning and performance: The Achievement Emotions Questionnaire (AEQ). *Contemp. Educ. Psychol.* 36, 36–48.
- Peng, J.-E., Woodrow, L., 2010. Willingness to communicate in English: A model in the Chinese EFL classroom context. *Lang. Learn.* 60, 834–876.
- Piniel, K., Csizér, K., 2015. Changes in motivation, anxiety and self-efficacy during the course of an academic writing seminar. *Motiv. Dyn. Lang. Learn.* 164–194.
- Pinner, R., 2013. Authenticity of purpose: CLIL as a way to bring meaning and motivation into EFL contexts. *Asian EFL J.* 15, 138–159.
- Pressley, M., Graham, S., Harris, K., 2006. The state of educational intervention research as viewed through the lens of literacy intervention. *Br. J. Educ. Psychol.* 76, 1–19.

- Puntambekar, S., Hubscher, R., 2005. Tools for scaffolding students in a complex learning environment: What have we gained and what have we missed? *Educ. Psychol.* 40, 1–12.
- Ravitz, J., Blazeovski, J., 2014. Assessing the role of online technologies in project-based learning. *Interdiscip. J. Probl.-Based Learn.* 8, 9.
- Raynor, J.O., Entin, E.E., 1983. The function of future orientation as a determinant of human behavior in step-path theory of action. *Int. J. Psychol.* 18, 463–487.
- Robertson, M., 2010. Can't play, won't play. *Hide Seek* 6, 2010.
- Ryan, R.M., Deci, E.L., 2000a. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am. Psychol.* 55, 68.
- Ryan, R.M., Deci, E.L., 2000b. Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemp. Educ. Psychol.* 25, 54–67.
- Ryan, S., 2009. Self and identity in L2 motivation in Japan: The ideal L2 self and Japanese learners of English. *Motiv. Lang. Identity* 12, 120–143.
- Ryan, S., 2008. The ideal L2 selves of Japanese learners of English. (Unpublished doctoral dissertation). University of Nottingham.
- Ryan, S., Dörnyei, Z., 2013. The long-term evolution of language motivation and the L2 self. *Fremdsprachen Perspekt. Leb. Lern.* 89–100.
- Safdari, S., Maftoon, P., 2017. The rise and fall of directed motivational currents: A case study. *J. Lang. Teach. Learn.* 7, 43–54.
- Sailer, M., Hense, J.U., Mayr, S.K., Mandl, H., 2017. How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction. *Comput. Hum. Behav.* 69, 371–380.
- Sakamoto, M., Nakajima, T., Alexandrova, T., 2012. Value-based design for gamifying daily activities, in: *International Conference on Entertainment Computing*. Springer, pp. 421–424.
- Salanova, M., Rodríguez-Sánchez, A.M., Schaufeli, W.B., Cifre, E., 2014. Flowing together: A longitudinal study of collective efficacy and collective flow among workgroups. *J. Psychol.* 148, 435–455.
- Saldaña, J., 2013. *The coding manual for qualitative researchers*. Sage.
- Saldaña, J., 2005. Theatre of the oppressed with children: A field experiment. *Youth Theatre J.* 19, 117–133.
- Salkind, N., 2020. *Encyclopedia of Research Design*. <https://doi.org/10.4135/9781412961288>
- Sampson, R.J., 2015. Tracing motivational emergence in a classroom language learning project. *System* 50, 10–20.
- Savery, J.R., 2015. Overview of problem-based learning: Definitions and distinctions. *Essent. Read. Probl.-Based Learn. Explor. Extending Leg. Howard Barrows* 9, 5–15.
- Sawyer, R.K., 2006. Group creativity: Musical performance and collaboration. *Psychol. Music* 34, 148–165.
- Schug, D., Le Cor, G., 2017. Towards a dynamic approach to analysing student motivation in ESP courses. *New Dev. ESP Teach. Learn. Res.* 73.
- Seaborn, K., Fels, D.I., 2015. Gamification in theory and action: A survey. *Int. J. Hum.-Comput. Stud.* 74, 14–31.
- Seaman, M.A., Levin, J.R., Serlin, R.C., 1991. New developments in pairwise multiple comparisons: some powerful and practicable procedures. *Psychol. Bull.* 110, 577.
- Seidman, I., 2006. *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. Teachers college press.

- Selçuk, Ö., Erten, İ.H., 2017. A Display of Patterns of Change in Learners' Motivation: Dynamics Perspective. *Novitas-R. Res. Youth Lang.* 11, 128–141.
- Shahbaz, M., Islam, M., Malik, M.A., 2017. Role of Gender Differences and Parents' Education in Shaping L2 Motivation of Pakistani Students. *J. Res. Reflect. Educ. JRRE* 11.
- Sharma, S., 1995. *Applied Multivariate Techniques*. Wiley.
- Sherhoff, D.J., Anderson, B., 2014. Enacting flow and student engagement in the college classroom. *Wiley Blackwell Handb. Posit. Psychol. Interv.* 194–212.
- Sherhoff, D.J., Csikszentmihalyi, M., 2009. Cultivating engaged learners and optimal learning environments. *Handb. Posit. Psychol. Sch.* 131–145.
- Simons, J., Dewitte, S., Lens, W., 2004a. The role of different types of instrumentality in motivation, study strategies, and performance: Know why you learn, so you'll know what you learn! *Br. J. Educ. Psychol.* 74, 343–360.
- Simons, J., Dewitte, S., Lens, W., 2003. "Don't do it for me. Do it for yourself!" Stressing the personal relevance enhances motivation in physical education. *J. Sport Exerc. Psychol.* 25, 145–160.
- Simons, J., Vansteenkiste, M., Lens, W., Lacante, M., 2004b. Placing motivation and future time perspective theory in a temporal perspective. *Educ. Psychol. Rev.* 16, 121–139.
- Simons, K.D., Klein, J.D., Brush, T.R., 2004. Instructional strategies utilized during the implementation of a hypermedia, problem-based learning environment: A case study. *J. Interact. Learn. Res.* 15, 213–233.
- Skehan, P., 1991. Individual differences in second language learning. *Stud. Second Lang. Acquis.* 13, 275–298.
- Stenbacka, C., 2001. Qualitative research requires quality concepts of its own. *Manag. Decis.* 39, 551–556. <https://doi.org/10.1108/EUM0000000005801>
- Stock, J., Cervone, D., 1990. Proximal goal-setting and self-regulatory processes. *Cogn. Ther. Res.* 14, 483–498.
- Stoller, F., 2006. Establishing a theoretical foundation for project-based learning in second and foreign language contexts. *Proj.-Based Second Foreign Lang. Educ. Past Present Future* 19–40.
- Strauss, A.L., 1987. *Qualitative analysis for social scientists*. Cambridge university press.
- Study Plans of the Deanship of Joint First Year - Umm Al-Qura University [WWW Document], 2019. URL <https://uqu.edu.sa/en/pre-edu/230> (accessed 5.15.19).
- Subhash, S., Cudney, E.A., 2018. Gamified learning in higher education: A systematic review of the literature. *Comput. Hum. Behav.*
- Suits, B., 1967. What is a Game? *Philos. Sci.* 34, 148–156.
- Sullivan, G.M., Artino Jr, A.R., 2013. Analyzing and interpreting data from Likert-type scales. *J. Grad. Med. Educ.* 5, 541–542.
- Sullivan, L.M., Weinberg, J., Keaney Jr, J.F., 2016. Common statistical pitfalls in basic science research. *J. Am. Heart Assoc.* 5, e004142.
- Sun, S.H., Frese, M., 2013. Multiple goal pursuit. In E. A. Locke & G. P. Latham (Eds.), *New developments in goal setting and task performance* (pp. 177–194). New York: Routledge.
- Szabó, K., Szemere, A., 2016. The role of motivation in higher educational gamification practice—extending the issue. *Prof Dele Braimoh Ex UNISA South Afr. Mar Camacho Martí Ph Univ. Rovira Virgili Tarrag. Spain PhDr Branislav Frk Ph Univ. Prešov Slovak. Francesco Pisanu Ph IPRASE Italy Emile Necessians Ph Univ. Teheran Iran* 53.

- Taguchi, T., Magid, M., Papi, M., 2009. The L2 motivational self system among Japanese, Chinese and Iranian learners of English: A comparative study. *Motiv. Lang. Identity* L2 Self 36.
- Tatsumoto, M., 2011. Perceived effects of peer cooperation on motivation in the Japanese university EFL classroom. University of Birmingham.
- Taylor-Jackson, A., 2019. The 5 Different Trend Lines Explained - The Data School Australia [WWW Document]. *Data Sch. Aust.* URL (accessed 10.13.20).
- Tejedor-García, C., Escudero-Mancebo, D., Cardeñoso-Payo, V., González-Ferreras, C., 2020. Using Challenges to Enhance a Learning Game for Pronunciation Training of English as a Second Language. *IEEE Access* 8, 74250–74266.
- Teng, C.-I., 2011. Who are likely to experience flow? Impact of temperament and character on flow. *Personal. Individ. Differ.* 50, 863–868.
- Ushioda, E., 2013. Motivation and ELT: Looking ahead to the future, in: *International Perspectives on Motivation*. Springer, pp. 233–239.
- Ushioda, E., 2009. A person-in-context relational view of emergent motivation, self and identity. *Motiv. Lang. Identity* L2 Self 215–228.
- Ushioda, E., 2003. Motivation as a socially mediated process. *Learn. Auton. Foreign Lang. Classr. Teach. Learn. Curric. Assess.* 90–102.
- Ushioda, E., 2001. Language learning at university: Exploring the role of motivational thinking. IN DÖRNYEI, Z. & SCHMIDT, R.(Eds.) *Motivation and second language learning*. Honolulu, HI. Manoa HI Univ. Hawaii.
- Ushioda, E., 1996. Developing a dynamic concept of motivation. *Lang. Educ. Soc. Chang. World* 239–245.
- Ushioda, E., 1994. L2 motivation as a qualitative construct. *Teanga* 14, 76–84.
- Van Lier, L., 2014. *Interaction in the language curriculum: Awareness, autonomy and authenticity*. Routledge.
- van Roy, R., Zaman, B., 2015. Moving beyond the effectiveness of gamification, in: *Proceeding of ACM CHI*.
- Verspoor, M., Lowie, W., Van Dijk, M., 2008. Variability in second language development from a dynamic systems perspective. *Mod. Lang. J.* 92, 214–231.
- Walker, C.J., 2010. Experiencing flow: Is doing it together better than doing it alone? *J. Posit. Psychol.* 5, 3–11.
- Waninge, F., Dörnyei, Z., De Bot, K., 2014. Motivational dynamics in language learning: Change, stability, and context. *Mod. Lang. J.* 98, 704–723.
- Waterman, A.S., 1993. Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *J. Pers. Soc. Psychol.* 64, 678.
- Waters, A., 1993. ESP--Things Fall Apart?.
- Wenk, N., Gobron, S., 2017. Reinforcing the difference between simulation, gamification, and serious game, in: *Proceedings of the Gamification & Serious Game Symposium*. pp. 1–3.
- Willett, T., 2013. Analyzing Likert scale data: The rule of n= 30 [WWW Document]. *Simul. Can.* URL <http://www.sim-one.ca/community/tip/analyzing-likert-scale-data-rule-n30> (accessed 6.12.20).
- Williams, M., Burden, R., 1997. *Psychology for language teachers*. Cambridge Camb.
- Williams, M., Burden, R., Lanvers, U., 2002. 'French is the language of love and stuff': Student perceptions of issues related to motivation in learning a foreign language. *Br. Educ. Res. J.* 28, 503–528.

- Winter, G., 2000. A comparative discussion of the notion of 'validity' in qualitative and quantitative research. *Qual. Rep.* 4, 1–14.
- Wu, M., 2012. The gamification backlash+ two long term business strategies [WWW Document]. Retrieved Febr. 27 2018 [Http://lithospherelithium.com/5science--Soc.-Blog-Gamification-Backlash-Two-Long-Term-Bus.-Strateg.-P30891](http://lithospherelithium.com/5science--Soc.-Blog-Gamification-Backlash-Two-Long-Term-Bus.-Strateg.-P30891).
- Yashima, T., 2009. International posture and the ideal L2 self in the Japanese EFL context. *Motiv. Lang. Identity L2 Self* 86, 144–163.
- You, C., Dörnyei, Z., Csizér, K., 2016. Motivation, vision, and gender: A survey of learners of English in China. *Lang. Learn.* 66, 94–123.
- Zaki, S., 2007. English for specific purposes: implications in medical education. *J. Coll. Physicians Surg.--Pak. JCPSP* 17, 1.
- Zarrinabadi, N., Tavakoli, M., 2017. Exploring motivational surges among Iranian EFL teacher trainees: Directed motivational currents in focus. *TESOL Q.* 51, 155–166.
- Zheng, Y., 2016. The complex, dynamic development of L2 lexical use: A longitudinal study on Chinese learners of English. *System* 56, 40–53.
- Zorrilla Salgador, J.P., 2018. *Data Analytics with Tableau: The Trend Lines Models*. Available SSRN 3282727.

Appendix A. King's College London Research Ethics Committee Approval

Research Ethics
Office

Franklin Wilkins Building
5.9 Waterloo Bridge Wing
Waterloo Road
London SE1 9NH
Telephone 020 7848 4020/4070/4077
rec@kcl.ac.uk



13/06/2019

Tamim Ajasir

Dear Tamim,

Using gamification principles to initiate and sustain a second language learning directed motivational current

Thank you for submitting your Research Ethics Minimal Risk Registration Form. This letter acknowledges confirmation of your registration; your registration confirmation reference number is MRS-18/19-13070

Please note: For projects involving the use of an Information Sheet and Consent Form for recruitment purposes, please ensure that you use the KCL GDPR compliant [Information Sheet & Consent Form Templates](#)

Be sure to keep a record your registration number and include it in any materials associated with this research. Registration is valid for **one year** from today's date. Please note it is the responsibility of the researcher to ensure that any other permissions or approvals (i.e. R&D, gatekeepers, etc.) relevant to their research are in place, prior to conducting the research.

Record Keeping:

In addition, you are expected to keep records of your process of informed consent and the dates and relevant details of research covered by this application. For example, depending on the type of research that you are doing, you might keep:

- A record of the relevant details for public talks that you attend, the websites that visit, the interviews that you conduct
- The 'script' that you use to inform possible participants about what your research involves. This may include written information sheets, or the generic information you include in the emails you write to possible participants, or what you say to people when you approach them on the street for a survey, or the introductory material stated at the top of your on-line survey.
- Where appropriate, records of consent, e.g. copies of signed consent forms or emails where participants agree to be interviewed.

Audit:

You may be selected for an audit, to see how researchers are implementing this process. If audited, you will be expected to explain how your research abides by the general principles of ethical research. In particular, you will be expected to provide a general summary of your review of the possible risks involved in your research, as well as to provide basic research records (as above in Record Keeping) and to describe the process by which participants agreed to participate in your research.

Remember that if you have any questions about the ethical conduct of your research at any point, you should contact your supervisor (where applicable) or the Research Ethics office.

Feedback:

If you wish to provide any feedback on the process you may do so by emailing rec@kcl.ac.uk.

We wish you every success with this work.

With best wishes

Mr James Patterson

Research Ethics Office

Appendix B. UQU's administration approval

١٥٨٥

VISION رؤية 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى

031

UQU

سعادة المشرف العام على إدارة البعثات

سلمة الله

السلام عليكم ورحمة الله وبركاته ، ، وبعد..

إشارة إلى الاتصال الهاتفي من الأستاذ/ تميم بن خالد بن عبدالعزيز الجاسر (رقم المنسوب: ٤٣١٠١١٧) المثبت على وظيفة معيد بمركز اللغة الإنجليزية والمبتعث لجامعة كينجز كولج لندن King's College London ببريطانيا ، بطلب الموافقة ومخاطبة المحقية ببريطانيا لعمل رحلة علمية.

افيد سعادتكم بأنه لا مانع لدى مركز اللغة الإنجليزية من قيام الأستاذ/ تميم بن خالد بن عبدالعزيز الجاسر برحلة علمية إلى المملكة العربية السعودية.

أمل من سعادتكم التكرم بالاطلاع ثم التفضل بتوجيه من يلزم بمخاطبة المحقية لاستكمال إجراءات الرحلة العلمية للمبتعث.

وتفضلوا بقبول تحياتي وتقديري...

مدير مركز اللغة الانجليزية

د. سامي بن محمد غالب عطرجي

الخ. ١٢

للفضة المنهج - تميم الجاسر

الرقم: ٤١١٠٢٢٥٧ التاريخ: ٢٠١٧/١٢/٥ المشفوعات:

KINGDOM OF SAUDI ARABIA

٢٠١٧

Appendix C. Information sheet

Version Number DD/MM/YY

INFORMATION SHEET FOR PARTICIPANTS

Ethical Clearance Reference Number: MRS-18/19-13070



YOU WILL BE GIVEN A COPY OF THIS INFORMATION SHEET

Title of study

Using gamification principles to initiate and sustain a second language learning directed motivational current

Invitation Paragraph

I would like to invite you to participate in this research project, which forms part of my doctoral research. Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

What is the purpose of the study?

The purpose of the study is to raise students' second language motivation by implementing a classroom intervention based on a gamified directed motivational current (GDMC) model. This GDMC intervention will be implemented as a classroom project which includes several tasks. The study aims to examine the introduction of gaming design elements as a practical framework to implement the directed motivational current (DMC) theory and thus create a motivational current in an 'English for specific purposes' (ESP) class.

Why have I been invited to take part?

You are being invited to participate in this study because you are a student in the foundation year at Umm Al-Qura University (UQU) and are required to study an intensive English course.

What will happen if I take part?

If you choose to take part in the study, you will be asked to participate in a classroom project in the form of a friendly contest. You will be asked to form a team with other three or four classmates and choose a name for your team. At the start of each unit in the textbook, you will be given a handout that explains the task all teams should accomplish by the end of the unit. For example, you may be asked to write and act out a short dialogue that includes vocabulary and grammar you learned during the unit. At the end of each class, you will take the last fifteen minutes to work on the project with your team. At the end of the unit, you will present your work in front of the class and three teachers. The teachers will evaluate your team presentation according to a rubric that is included in the handout. The team with the most points will win the contest, and their team name will be put on the contest leaderboard, which will be created to show the winning team of each task. This process will be repeated four times in one-month period. The project will take place at UQU and during regular classes time.

Twice a week, you will anonymously complete a questionnaire that contains 37 items that will ask your opinion regarding your motivation level during the project. After each task ends, I will ask for volunteers to be interviewed (one or two students). The interview will be one on one and contained approximately fifteen questions. During the interview, I will ask you to describe how you feel regarding the experience. For example, I will ask if you liked competing with your classmates during the contest and if you enjoyed the contest and considers it as a fun experience. The interviews audio will be recorded only with your consent. You will not be asked to provide personal or sensitive information. Direct quotations may be used in the study's final report. These quotations will be attributed to pseudonyms, and no personal information will be used to reference the participant. Participation will take place at UQU campus and during regular classes time. The whole project and data collection will take four weeks to be completed.

Do I have to take part?

Participation is completely voluntary. You should only take part if you want to and choosing not to take part will not disadvantage you in any way. Once you have read this information sheet, please contact me if you have any questions that will help you make a decision about taking part. If you decide to take part, we will ask you to sign a consent form, and you will be given a copy of this consent form to keep.

What are the possible risks of taking part?

There are not any potential physical risks. Also, participating in the study will not affect your academic grades in any way.

What are the possible benefits of taking part?

The study aims to increase students' motivation in an enjoyable manner which, if successful, could encourage you to learn the subject matter better in an enjoyable way.

King's College London - Research Ethics
May 2018

Data handling and confidentiality

Your data will be processed in accordance with the General Data Protection Regulation 2016 (GDPR). All data will be securely saved on personal storage provided by King's college university server. This space is password protected and accessed remotely by the researcher. Stored data will not contain information that can identify participants as the questionnaire does not require you to enter your name or any contact information and pseudonyms will be used to refer to students who participated in the interviews.

The gathered data will be retained on King's college university server until no longer needed, then destroyed in accordance to the Records and Data Retention Schedule (RDRS) which supports the efficient and legally compliant lifecycle management of records in all formats, both paper and electronic. Using the RDRS, departments can confidently dispose of records and data that they no longer need. This can be done with the assurance that requirements under the Freedom of Information Act 2000, the General Data Protection Regulation (GDPR) and the wider framework of information rules and regulations have been appropriately addressed.

Data Protection Statement

The data controller for this project will be King's College London (KCL). The University will process your personal data for the purpose of the research outlined above. The legal basis for processing your personal data for research purposes under GDPR is a 'task in the public interest' You can provide your consent for the use of your personal data in this study by completing the consent form that has been provided to you.

You have the right to access information held about you. Your right of access can be exercised in accordance with the General Data Protection Regulation. You also have other rights including rights of correction, erasure, objection, and data portability. Questions, comments and requests about your personal data can also be sent to the King's College London Data Protection Officer Mr Albert Chan info-compliance@kcl.ac.uk. If you wish to lodge a complaint with the Information Commissioner's Office, please visit www.ico.org.uk.

What if I change my mind about taking part?

You are free to withdraw at any point of the study, without having to give a reason. Withdrawing from the study will not affect you in any way. Because the whole class must participate in the study, arrangements have been made with UQU management to allow you to transfer to other classes that are not participating in the study at any time and without any penalties. You can withdraw your interview data from the study up until 1/10/2019, after which withdrawal of your data will no longer be possible because the data will have been anonymised or committed to the final report. Data gathered through the questionnaire cannot be withdrawn once submitted as they are anonymous. If you choose to withdraw from the study, we will not retain the information you have given in the interview..

What will happen to the results of the study?

The results of the study will be summarised and used in an unpublished PhD dissertation. A copy of the dissertation will be available through the Saudi Digital Library and King's College London library.

Who should I contact for further information?

If you have any questions or require more information about this study, please contact me using the following contact details:

tamim.aljasir@kcl.ac.uk

What if I have further questions, or if something goes wrong?

If this study has harmed you in any way or if you wish to make a complaint about the conduct of the study you can contact King's College London using the details below for further advice and information:

DR URSULA WINGATE
ursula.wingate@kcl.ac.uk
Telephone: +44 (0)20 7836 5454 Ext: 3536
Address: WATERLOO CAMPUS, FWB, WBW 1.12

Thank you for reading this information sheet and for considering taking part in this research.

Appendix D. Consent form

Version Number –DD/MM/YY

CONSENT FORM FOR PARTICIPANTS IN RESEARCH STUDIES

Please complete this form after you have read the Information Sheet and/or listened to an explanation about the research.



Title of Study: Using gamification principles to initiate and sustain a second language learning directed motivational current

King's College Research Ethics Committee Ref: MRS-18/19-13070

Thank you for considering taking part in this research. The person organising the research must explain the project to you before you agree to take part. If you have any questions arising from the Information Sheet or explanation already given to you, please ask the researcher before you decide whether to join in. You will be given a copy of this Consent Form to keep and refer to at any time.

I confirm that I understand that by ticking/initialling each box I am consenting to this element of the study. I understand that it will be assumed that unticked/initialled boxes mean that I DO NOT consent to that part of the study. I understand that by not giving consent for any one element I may be deemed ineligible for the study.

Please tick or initial

1. I confirm that I have read and understood the information sheet dated 14/9/2019 for the above study. I have had the opportunity to consider the information and asked questions which have been answered to my satisfaction.

Please tick or initial

2. I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason, up until 1/10/2019.

3. I consent to the processing of my personal information for the purposes explained to me in the Information Sheet. I understand that such information will be handled in accordance with the terms of the General Data Protection Regulation.

4. I understand that my information may be subject to review by responsible individuals from the College for monitoring and audit purposes.

5. I understand that confidentiality and anonymity will be maintained, and it will not be possible to identify me in any research outputs

6. I consent to my interview being audio recorded.

7. I understand that direct quotations from the interview may be used in the study's final report and will be attributed to pseudonyms and no personal information will be used to reference the interviewee.

Name of Participant

.....

Date

Signature

Name of Researcher

TAMIM ALJASIR

Date

Signature

Appendix E. Screenshots of the contest websites



Hello G104, welcome
to THE GAND
CONTEST LEADER
BOARD

WEEKLY TASKS



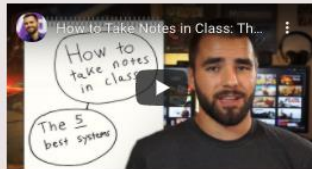
TASK |01

TASK |01 Short Story

Work with your teammates and write a short story, make sure that include the following elements:

- 1- Quantifiers as in lesson 5.1
- 2- Correct grammar
- 3- Be creative ;)

Each student must contribute. Use the writing tips you studied in Unit 4.



TASK |02

TASK |02 Notetaking

In this task, you are going to watch a short video. The video contains a lot of information, your task is to take as many notes as possible. After that get together with your teammates and write down all the information in the video by combining your notes. use the notetaking skills you learned in unit 5, Good luck ;)



TASK |03

TASK |03 Asking Questions

This week we will play 21 Questions. I will think of a person, job, or an object. As teams, you will take turns to ask yes or no question in order to figure out the answer. You will have one chance to guess, if you are wrong you are out of the game. Make sure that the grammar of your question is correct, otherwise, I will not answer and you will lose your turn. Have fun ;)

Appendix F. Questionnaire pool of items

Below is Student Motivational State Questionnaire from (Guilloteaux and Dörnyei, 2008, p. 77)

Student Motivational State Questionnaire

Attitudes Toward the Course (9 items, Cronbach alpha = .85)

- I wish we had more English lessons at school this semester.
- I like English lessons this semester.
- English is one of my favorite subjects at school this semester.
- When the English lesson ends, I often wish it could continue.
- I want to work hard in English lessons to make my teacher happy.
- I enjoy my English lessons this semester because what we do is neither too hard nor too easy.
- I would rather spend time on subjects other than English. (REVERSED)
- Learning English at school is a burden for me this semester. (REVERSED)
- In English lessons this semester, we are learning things that will be useful in the future.

Linguistic Self-Confidence (8 items; Cronbach alpha = .80)

- I feel I am making progress in English this semester.
- I believe I will receive good grades in English this semester.
- I often experience a feeling of success in my English lessons this semester.
- I am sure that 1 day I will be able to speak English.
- In English lessons this semester, I usually understand what to do and how to do it.
- This semester, I think I am good at learning English.
- I am worried about my ability to do well in English this semester. (REVERSED)
- I often volunteer to do speaking presentations in English lessons.

L2-Classroom Anxiety (3 items; Cronbach alpha = .63)

- I get very worried if I make mistakes during English lessons this semester.
- I am afraid that my classmates will laugh at me when I have to speak in English lessons.
- I feel more nervous in English class this semester than in my other classes.

Below is motivational strategies employed by Taiwanese English teachers from (Cheng and Dörnyei, 2007)

Below is a list of possible motivational strategies that some teachers use to motivate their learners. We would like to ask you to decide about each strategy *how often* you have used it in your own teaching practice. Thank you for your help!

Please mark a tick (✓) in the appropriate blank on the continuum between 'Hardly ever' to 'Very often' (e.g. ___:___:___:___:___). Please only tick one space and answer all the questions.

- | | |
|--|--|
| 1. Bring in and encourage humour and laughter frequently in your class. | Hardly ever ___:___:___:___:___ Very often |
| 2. Show students that you respect, accept and care about each of them. | Hardly ever ___:___:___:___:___ Very often |
| 3. Create opportunities so that students can mix and get to know each other better (e.g. group work, game-like competition). | Hardly ever ___:___:___:___:___ Very often |
| 4. Familiarize the learners with the cultural background of the English language. | Hardly ever ___:___:___:___:___ Very often |
| 5. Explain the importance of the 'class rules' that you regard as important (e.g. let's not make fun of each other's mistakes) and how these rules enhance learning, and then ask for the students' agreement. | Hardly ever ___:___:___:___:___ Very often |
| 6. Give clear instructions about how to carry out a task by modelling every step that students will need to do. | Hardly ever ___:___:___:___:___ Very often |
| 7. Invite senior students who are enthusiastic about learning English to talk to your class about their positive English learning experiences/successes. | Hardly ever ___:___:___:___:___ Very often |
| 8. Monitor students' accomplishments, and take time to celebrate any success or victory. | Hardly ever ___:___:___:___:___ Very often |
| 9. Regularly remind students that the successful mastery of English is beneficial to their future (e.g. getting a better job or pursuing further studies abroad). | Hardly ever ___:___:___:___:___ Very often |
| 10. Encourage students to select specific, realistic and short-term learning goals for themselves (e.g. learning 5 words every day). | Hardly ever ___:___:___:___:___ Very often |
| 11. Design tasks that are within the learners' ability so that they get to experience success regularly. | Hardly ever ___:___:___:___:___ Very often |
| 12. Introduce in your lessons various interesting content and topics which students are likely to find interesting (e.g. about TV programmes, pop stars or travelling). | Hardly ever ___:___:___:___:___ Very often |
| 13. Make tasks challenging by including some activities that require students to solve problems or discover something (e.g. puzzles). | Hardly ever ___:___:___:___:___ Very often |
| 14. Teach the students self-motivating strategies (e.g. self-encouragement) so as to keep them motivated when they encounter distractions. | Hardly ever ___:___:___:___:___ Very often |
| 15. Make sure grades reflect not only the students' achievement but also the effort they have put into in the task. | Hardly ever ___:___:___:___:___ Very often |
| 16. Ask learners to think of any classroom rules that they would like to recommend because they think those will be useful for their learning. | Hardly ever ___:___:___:___:___ Very often |

- | | |
|--|---|
| 17. Show your enthusiasm for teaching English by being committed and motivating yourself. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 18. Break the routine of the lessons by varying presentation format (e.g. a grammar task can be followed by one focusing on pronunciation; a whole-class lecture can be followed by group work). | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 19. Invite some English-speaking foreigners as guest speakers to the class. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 20. Help the students develop realistic beliefs about their learning (e.g. explain to them realistically the amount of time needed for making real progress in English). | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 21. Use short and interesting opening activities to start each class (e.g. fun games). | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 22. Involve students as much as possible in designing and running the language course (e.g. provide them with opportunities to select the textbooks; make real choices about the activities and topics they are going to cover; decide whom they would like to work with). | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 23. Establish a good relationship with your students. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 24. Encourage student participation by assigning activities that require active involvement from each participant (e.g. group presentation or peer teaching). | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 25. Give good reasons to students as to why a particular activity is meaningful or important. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 26. Try and find out about your students' needs, goals and interests, and then build these into your curriculum as much as possible. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 27. Allow students to create products that they can display or perform (e.g. a poster, an information brochure or a radio programme). | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 28. Encourage learners to try harder by making it clear that you believe that they <i>can</i> do the tasks. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 29. Give students choices in deciding how and when they will be assessed/evaluated. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 30. Create a supportive and pleasant classroom climate where students are free from embarrassment and ridicule. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 31. Display the 'class goals' on the wall and review them regularly in terms of the progress made towards them. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 32. Bring various authentic cultural products (e.g. magazines, newspapers or song lyrics) to class as supplementary materials. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 33. Make clear to students that the important thing in learning a foreign language is to communicate meaning effectively rather than worrying about grammar mistakes. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 34. Notice students' contributions and progress, and provide them with positive feedback. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |
| 35. Include activities that require students to work in groups towards the same goal (e.g. plan a drama performance) in order to promote cooperation. | Hardly ever ___: ___: ___: ___: ___: ___ Very often |

There are more items on the next page

- 36. Teach students various learning techniques that will make their learning easier and more effective. Hardly ever ___: ___: ___: ___: ___: Very often
- 37. Adopt the role of a ‘facilitator’ (i.e. Your role would be to help and lead your students to think and learn in their own way, instead of solely giving knowledge to them). Hardly ever ___: ___: ___: ___: ___: Very often
- 38. Highlight the usefulness of English and encourage your students to use their English outside the classroom (e.g. internet chat room or English speaking pen-friends). Hardly ever ___: ___: ___: ___: ___: Very often
- 39. Motivate your students by increasing the amount of English you use in class. Hardly ever ___: ___: ___: ___: ___: Very often
- 40. Share with students that you value English learning as a meaningful experience that produces satisfaction and which enriches your life. Hardly ever ___: ___: ___: ___: ___: Very often
- 41. Avoid ‘social comparison’ amongst your students (i.e. comparing them to each other for example when listing their grades in public). Hardly ever ___: ___: ___: ___: ___: Very often
- 42. Encourage learners to see that the main reason for most failure is that they did not make sufficient effort rather than their poor abilities. Hardly ever ___: ___: ___: ___: ___: Very often
- 43. Make tasks attractive by including novel or fantasy elements so as to raise the learners’ curiosity. Hardly ever ___: ___: ___: ___: ___: Very often
- 44. Encourage students to share personal experiences and thoughts as part of the learning tasks. Hardly ever ___: ___: ___: ___: ___: Very often
- 45. Enrich the channel of communication by presenting various auditory and visual aids such as pictures, realia, tapes and films. Hardly ever ___: ___: ___: ___: ___: Very often
- 46. Show students that their effort and achievement are being recognized by you. Hardly ever ___: ___: ___: ___: ___: Very often
- 47. Try to be yourself in front of students without putting on an artificial ‘mask’, and share with them your hobbies, likes and dislikes. Hardly ever ___: ___: ___: ___: ___: Very often
- 48. Give students opportunities to assess themselves (e.g. give themselves marks according to their overall performance). Hardly ever ___: ___: ___: ___: ___: Very often

Finally, would you please answer the following short questions:

- 1. What’s your gender? Male ___ Female ___
- 2. How long have you been teaching English (in months/years)? ___
- 3. Where do you teach? (you may tick more than one category)
 - ___ university/college
 - ___ senior high school
 - ___ junior high school
 - ___ vocational school
 - ___ elementary school
 - ___ cram school
 - ___ private lessons
 - ___ others
- 4. Have you ever studied abroad? If so where and how long? _____
- 5. Which region do you work in? _____
 - A. Taipei B. North (without Taipei) C. Centre D. South

- 6. In what sort of place is the school you teach? _____
 - A. city B. town C. village

If you have any questions about the survey or are interested to learn more about the results, please contact the researcher: Cheng, Hsing-Fu (Lilian).
E-mail:

Thank you very much for your kind help and participation. We appreciate it!

Below is Teachers' use of Motivational Strategy Scale (TUMSS) for Students (Erdil-Moody, 2016, p. 308-309)

		almost never	occasionally	sometimes	generally	often	almost always
	How often does your ENG instructor use these strategies?						
	Question: This semester, my foreign language instructor/ Bu dönem yabancı dil öğretmenim						
1	uses ice-breakers at the beginning of each class <i>derse, bizi rahatlatıcı kişisel sohbetlerle ya da interaktif, teyatral veya iletişimsel etkinlikler ile baslar</i>						
2	clearly states lesson objectives at the beginning of each class <i>her dersin başında ders amaçlarını açık bir şekilde bizimle paylaşıyor</i>						
3	creates a friendly stress-free learning environment <i>bizim için gergin olmayan stresten uzak bir sınıfta ortamı sağlar</i>						
4	Encourages risk-taking in our classes <i>derslerimizde risk almayı teşvik eder</i>						
5	gives us a genuine meaningful purpose to work on activities <i>sınıf aktivitelerine katılmamız için bizi motive edecek gerçekçi sebepler verir</i>						
6	establishes connections between her/his course content and outside world <i>kendi ders içeriğini sınıf dışında ki hayatımıza bağlantılar kurarak işler</i>						
7	shares positive views of influential public figures about language learning <i>halk arasında etkili ve sevilen kişilerin dil öğrenimi hakkında ki olumlu yorumlarını bizimle paylaşır</i>						
8	emphasizes in class her/his own personal interest in learning a foreign language <i>Yabancı dil öğrenimine olan kişisel ilgisini bizimle paylaşır</i>						
9	promotes interaction and cooperation in classes <i>öğrenciler arasında ortak çalışmayı ve karşılıklı ilişkileri güçlendirmeye çalışır</i>						
10	promotes exposure to L2 cultural products to familiarize us with the L2 culture <i>öğrendiğimiz yabancı dilin kültürünü bize tanıtan, o kültürü yansıtan ürünler ve materyallerle dile ve kültürene olan yakınlığımızı artırır</i>						
11	highlights how knowing English can be potentially useful for us <i>İngilizce bilmenin bizim için ne gibi faydaları olabileceğini bize anlatır</i>						
12	arouses curiosity or attention before activities <i>Aktivitelere başlamadan önce bizim merakımızı ve ilgisimizi artırır</i>						
13	prepares tasks that are manageable yet challenging <i>Hafif zorlayıcı fakat başarabileceğimiz zorlukta aktiviteler hazırlar</i>						
14	encourages self correction <i>hatalarımızı düzeltmemiz için bizi cesaretlendirir</i>						

2

		almost never	occasionally	sometimes	generally	often	almost always
15	offers praise and constructive feedback for effort and/or achievement <i>çabamız ve/ya da başarımız için bizi over ve yapıcı geribildirim verir</i>						
16	has us cooperate in small groups <i>kucuk gruplar halinde beraber çalismamızı ister</i>						
17	encourages us to explain our failures by the lack of effort rather than by our insufficient ability <i>Bir şeyi basaramadığımızda, bunu yeteneğimizin az olması ile değil, yeterince çaba harcamamış olmamızla anlatmamızı tesvik eder</i>						
18	Shows us that s/he values learning a foreign language as a meaningful experience because it brings satisfaction and/or enriches one's life <i>Yabancı dil öğrenimine ne kadar önem verdiğini ve bunun hayatını zenginleştiren ve onu mutlu eden önemli bir deneyim olduğunu söyler</i>						
19	invites senior students to talk to us about their positive experiences <i>Olumlu İngilizce öğrenme deneyimlerini bizimle paylaşmaları için son sınıf öğrencileri sınıfımıza davet eder</i>						
20	has mistakes accepted as a natural part of learning <i>Bize hataların öğrenmenin doğal bir parçası olduğunu öğretir</i>						
21	teaches self-motivating strategies by strengthening our visual image of ourselves with high foreign language proficiency <i>Kendimizin yüksek yabancı dil becerisine sahip imajımızı beynimizde güçlendirerek, kendi kendimizi motive etmemize yardımcı olur</i>						
22	emphasizes the importance of intercultural community in class <i>derslerimizde kültürlerarası iletişimin ve toplumun önemini vurgular</i>						
23	encourages peer correction <i>derste arkadaşlarımızın hatalarını düzeltmemizi destekler</i>						
24	brings in and encourages humor <i>derslerde espiri yapar ve bizim de yapmamızı destekler</i>						
25	shows us that s/he cares about our progress <i>bizim kendimizi geliştirmemizle yakından ilgilenir</i>						

3092

Below is the English Language Learning Survey from (Clément et al., 1994)

score indicates high anxiety in English class.

7. Anxiety in Class

1. It embarrasses me to volunteer answers in our English class.
2. I never feel quite sure of myself when I am speaking English in our English class.
3. I always feel that the other students speak English better than I do.
4. I get nervous and confused when I am speaking in my English class.
5. I am afraid that other students will laugh at me when I speak English.

→ TO THE USER: The following scale is measured on the 6-point Likert scale. The asterisk “*” indicates those items that are reversed prior to computing the total score for the scale. A high score indicates high English use anxiety.

8. English Use Anxiety

1. When I have to speak in English on the phone I easily become confused.
2. I do not find it at all embarrassing if I have to give directions in English to English-speaking tourists. *
3. I feel calm and confident in the company of English-speaking people.
4. I usually get uneasy when I have to speak in English. *

→ TO THE USER: The following scale is measured on the 6-point Likert scale. The asterisk “*” indicates those items that are reversed prior to computing the total score for the scale. A high score indicates high group cohesion.

9. Perceived Group Cohesion in the Student

1. Sometimes there are tensions among group members, which make it difficult to concentrate on learning. *
2. There are some people in this group who do not really like each other. *
3. There are some cliques in this group. *
4. I think some people in this group feel left out. *
5. Compared to other groups like mine, I feel my group is better than most.
6. This group is composed of people who fit together.
7. If I were to participate in another group like this one, I would want it to include people who are very similar to the ones in this group.
8. I am dissatisfied with my group. *

Instructions for using the self-evaluation scales

Indicate your response to the following statements by crossing out the number which most corresponds to your evaluation. For example, if you think that you can read French ‘all right’, cross out the line marked (3), like this:

1. I read French...
 (1) : (2) : ~~(3)~~ : (4) : (5) : (6)

Below is the Willingness to Communicate in English Survey from (Peng and Woodrow, 2010)

Factor Loadings of Communication Confidence in the Pilot Study (N = 306)

No.	Item	CA	PC
B14	When giving an oral presentation to the rest of the class.	.847	
B13	When taking part in a role-play or dialogue in front of my class.	.802	
B15	When asked to contribute to a formal discussion in class.	.772	
B11	When the teacher asks me a question in English.	.753	
B16	When I have to speak without preparation in English class.	.733	
B12	When speaking informally to my English teacher during classroom activities.	.658	
C20	I am able to give my peer sitting next to me directions to my favorite restaurant in English.		.836
C17	I am able to do a role-play in English at my desk, with my peer (e.g., ordering food in a restaurant).		.755
C22	I am able to translate a spoken utterance from Chinese into English in my group.		.755
C19	I am able to tell my group mates in English about the story of a TV show I saw.		.739

867 Language Learning 60:4, December 2010, pp. 834-876

Peng and Woodrow Willingness to Communicate in English

No.	Item	CA	PC
C18	I am able to do a role-play standing in front of the class in English (e.g., ordering food in a restaurant).	.680	
C21	I am able to give a short self-introduction without notes in English to the class.	.622	

Note: Factor loadings lower than .30 are not included in this solution. CA = communication anxiety; PC = perceived communication confidence.

Peng and Woodrow Willingness to Communicate in English

Factor Loadings of Learner Beliefs in the Pilot Study (N = 311)

No.	Item	LB1	LB2
E42	The student who always speaks up in class will be loathed by other classmates.	.899	
E41	The student who always speaks up in class is showing off his/her English proficiency.	.778	
E43	Students should not speak up without being invited by the teacher.	.561	
E40	I learn little by participating in communication activities in class.	.407	
E38	Learning English is mostly a matter of translating from Chinese.		.667
E39	To understand English, it must be translated into Chinese.	.596	
E37	Learning English is mostly a matter of learning grammar rules.	.554	
E36	In English classes, I prefer to have my teacher provide explanations in Chinese.	.440	
E35*	You should not say anything in English until you can speak it correctly.	.283	

Note: Factor loadings lower than .30 are not included in this solution. LB1 = learner beliefs about classroom communication; LB2 = learner beliefs about English learning. *Item E35 was retained because its content is about concerns with fluency, which is important to the study.

Factor Loadings of Classroom Environment in the Pilot Study (N = 319)

No.	Item	CE1	CE2	CE3
F54	Tasks designed in this class are useful.	.812		
F52	Tasks designed in this class are attracting.	.787		
F53	I know what I am trying to accomplish in this class.	.648		
F55	Activities in this class are clearly and carefully planned.	.533		
F56	Class assignments are clear so everyone knows what to do.	.441		
F50	I work well with other class members.		.902	
F49	I am friendly to members of this class.		.858	
F48	I make friends among students in this class.		.768	

869 Language Learning 60:4, December 2010, pp. 834-876

Factor Loadings of WTC in English in the Pilot Study (N = 305)

No.	Item	WTC1	WTC2
A4	I am willing to do a role-play standing in front of the class in English (e.g., ordering food in a restaurant).	.933	
A9	I am willing to give a short self-introduction without notes in English to the class.	.830	
A3	I am willing to give a short speech in English to the class about my hometown with notes.	.752	
A10	I am willing to translate a spoken utterance from Chinese into English in my group.	.578	

Language Learning 60:4, December 2010, pp. 834-876 866

Peng and Woodrow Willingness to Communicate in English

No.	Item	WTC1	WTC2
A2	I am willing to ask the teacher in English to repeat what he/she just said in English because I didn't understand.	.435	
A1	I am willing to do a role-play in English at my desk, with my peer (e.g., ordering food in a restaurant).	.426	
A8	I am willing to ask my peer sitting next to me in English the meaning of an English word.		.974
A7	I am willing to ask my group mates in English the meaning of word I do not know.		.954
A5	I am willing to ask my group mates in English how to pronounce a word in English.		.683
A6	I am willing to ask my peer sitting next to me in English how to say an English phrase to express the thoughts in my mind.		.642

Note: Factor loadings lower than .30 are not included in this solution. WTC1 = WTC in English in meaning-focused activities; WTC2 = WTC in English in form-focused activities.

Factor Loadings of Motivation to Learn English in the Pilot Study (N = 299)

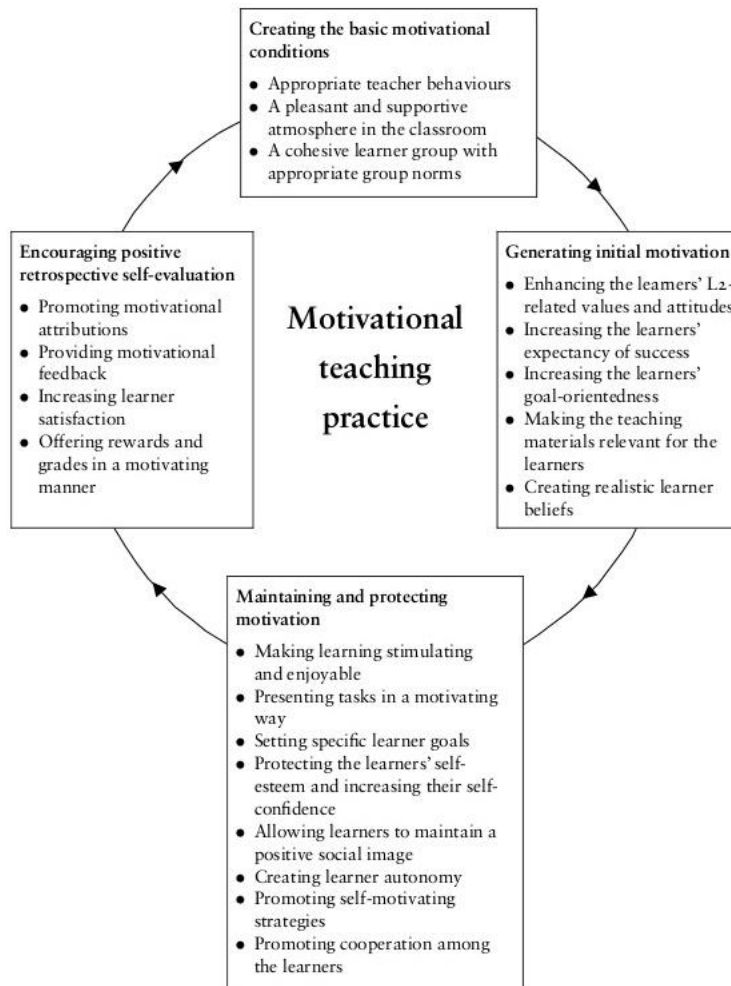
No.	Item	MO1	MO2	MO3
D32	For the pleasure I experience when surpassing myself in my English studies.	.896		
D31	Because I enjoy the feeling of acquiring knowledge about the English-speaking community and their way of life.	.840		
D30	For the satisfied feeling I get in finding out new things.	.812		
D33	For the enjoyment I experience when I grasp a difficult construct in English.	.794		
D34	For the "high" I feel when hearing English spoken.	.777		
D24	In order to get a more prestigious job later on.		.917	
D25	In order to have a better salary later on.		.889	
D0*	Because I have to pass English examinations.		.532	
D29	Because I choose to be the kind of person who can speak English.			.869
D27	Because I choose to be the kind of person who can speak more than one language.			.772
D28	Because I think it is good for my personal development.			.570

Note: Factor loadings lower than .30 are not included in this solution. MO1 = intrinsic motivation; MO2 = external regulation; MO3 = identified regulation. *Item D0 was removed in the main study due to high skewness.

Language Learning 60:4, December 2010, pp. 834-876 868

Appendix G. The Components of Motivational Teaching Practice in the L2 Classroom

From (Dörnyei, 2001, p. 29)



Appendix H. Questionnaire to assess the GDMC intervention effects on L2 motivation in classroom setting

This questionnaire has been designed to assess the English language motivation level of undergraduate students in foundation year at Umm Al-Qura University (UQU), Saudi Arabia. It aims to understand your views on English language motivation in the classroom. This questionnaire consists of four sections. Please note, this is not a test so there are no 'right', or 'wrong' answers and you do not even have to mention your name. Therefore, I request you to answer the following questions frankly and honestly because only this can guarantee the success of this research. The information you give will be used only for research purpose. Thank you very much for your help.

Please choose the number from 1 to 6 that best expresses how much you agree or disagree with the following statements. Please do not leave out any items.

Strongly disagree = 1 - Disagree = 2 – Slightly agree = 3 – Slightly disagree = 4 - Agree = 5 – Strongly agree = 6

Attitudes Toward the Course

1. Objectives of the lesson are states at the beginning of each class.
2. I am encouraged to take risk in my classes when using English (for example to use vocabulary not in the textbook).
3. I have a genuine meaningful purpose to work on activities.
4. My teacher establishes connections between the course content and outside world.
5. Interaction and cooperation are promoted in classes.
6. I see how Learning English can be potentially useful for me.
7. Activities in class arouses my curiosity or attention.
8. Classroom activities are manageable yet challenging.
9. We often work in small groups in the class.
10. Making mistakes is ok and is considered as part of learning.
11. There are activities that teaches me self-motivating strategies.
12. There are activities that strengthen future image of myself as fluent English speaker.
13. My classes are fun, I enjoy them.
14. I learn a variety of different ways to learn English and how can they contribute to success.
15. In English classes, we are learning things that will be useful in the future.
16. We do activities that breaks the routine of regular classes.
17. There are activities encourage students to select specific, realistic and short-term learning goals for themselves.

L2 Classroom Linguistic Self-Confidence

18. I feel I am making progress in English this semester.
19. I believe I will receive good grades in English this semester.
20. I often experience a feeling of success in my English lessons this semester.
21. I am sure that one day I will be able to speak English fluently.
22. I receive praise and useful feedback for my effort and/or achievement.

L2 Classroom Anxiety

23. It embarrasses me to volunteer answers in my English class.
24. I always feel that the other students speak English better than I do.
25. I get very worried if I make mistakes during English lessons this semester.
26. I feel more nervous in English class this semester than in my other classes.

27. My English classroom is a friendly stress-free learning environment.

Willingness to Communicate (WTC)

- 28. I am willing to ask the teacher in English to repeat what he just said in English because I didn't understand.
- 29. Absolutely no Arabic should be used in English classes.
- 30. I like working in a group on classroom activities.
- 31. I am willing to do a role-play standing in front of the class in English (e.g., ordering food in a restaurant).
- 32. I try to use English outside the classroom (for example read the news, watch videos, and talk to friends in English).

Appendix I. Focus groups prompts

Topic 1: The contest

Including gamification elements: Reward (points, winning, and leaderboards)

Introductory questions:

- How did you feel about participating in the contest?
- Describe your learning experience during the weekly activities and your regular classes? (At this question, take notes of interesting points of discussion and ask follow-up questions).
- How did you feel about collecting points, winning the weekly activities, and seeing your team's name on the leaderboards?

Probing questions:

- What, exactly, did you like/dislike about participating in the contest? Why?
- What, exactly, did you like/dislike about collecting points, winning the weekly activities, and seeing your team's name on the leaderboards? Why?

Topic 2: The weekly activities

Introductory question:

- Think back to when you were working on the week' activity, how do feel about learning English through the weekly activities in comparison to your regular classes?

Probing questions:

- What, exactly, did you like/dislike about this week's activity in particular?

Topic 3: Students' motivation

Introductory question:

- Think back over your past week(s) and describe your motivation during working on the week' activity and regular classes?
- Have a look at the graph where you indicated your motivation level during the past (X) weeks, describe the changes in your motivation? Why you think your line graph is shaped this way? and why is it different from your teammates' graphs?

Exiting question:

- In a few words, how would you summaries today's talk?
- Do you want to add anything before we finish?

Appendix J. Changes in Learner’s motivation-tracking graph

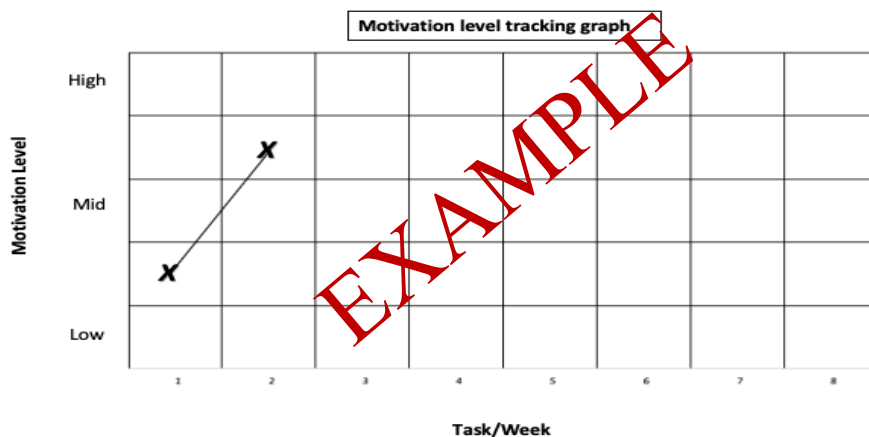
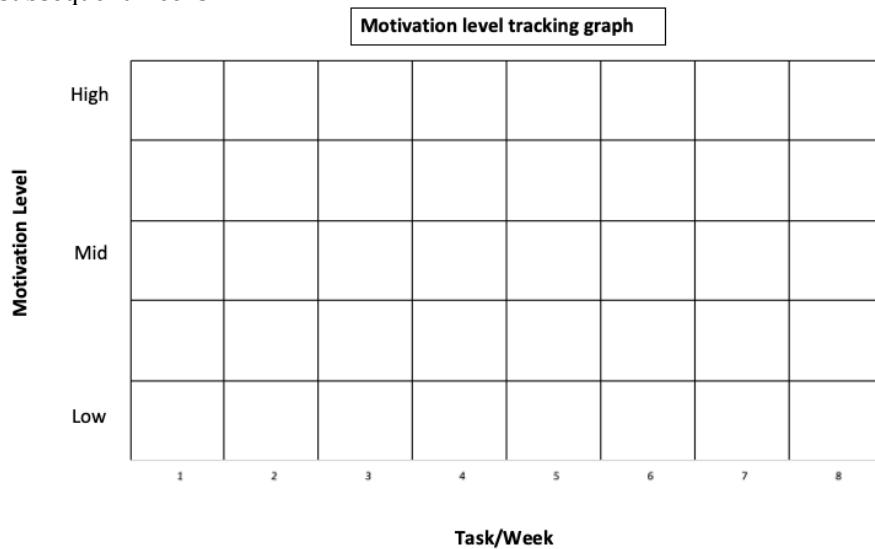
PART I:

- Student number _____ Name _____

The purpose of this survey is to investigate changes in students’ motivation in the foundation year at Umm Al-Qura University. It is part of an academic research and it is not a test so there are no ‘right’, or ‘wrong’ answers your responses have absolutely no relation to your course grades. Therefore, I request you to indicate your motivation level frankly and honestly because only this can guarantee the success of this research. The information you give will be used only for research purpose. Thank you for your cooperation!

PART II:

Reflect on your motivation level in English language classes during the past week. Look at the example chart below, mark your answer with [X]. Connect each [X] with the previous ones in subsequent weeks.



Appendix K. Focus group Interviews Checklist

(adapted from McNamara, 2011)

Preparation for Interview

- The setting has little distraction.
- Explain the purpose of the interview.
- Address terms of confidentiality. (Explain who will get access to their answers and how their answers will be analysed)
- Explain the format of the interview.
- Indicate how long the interview usually takes.
- Provide away to get in touch later if they want to.
- Ask if the interviewee has any questions.
- Ask for permission to record the interview and start the recording device.

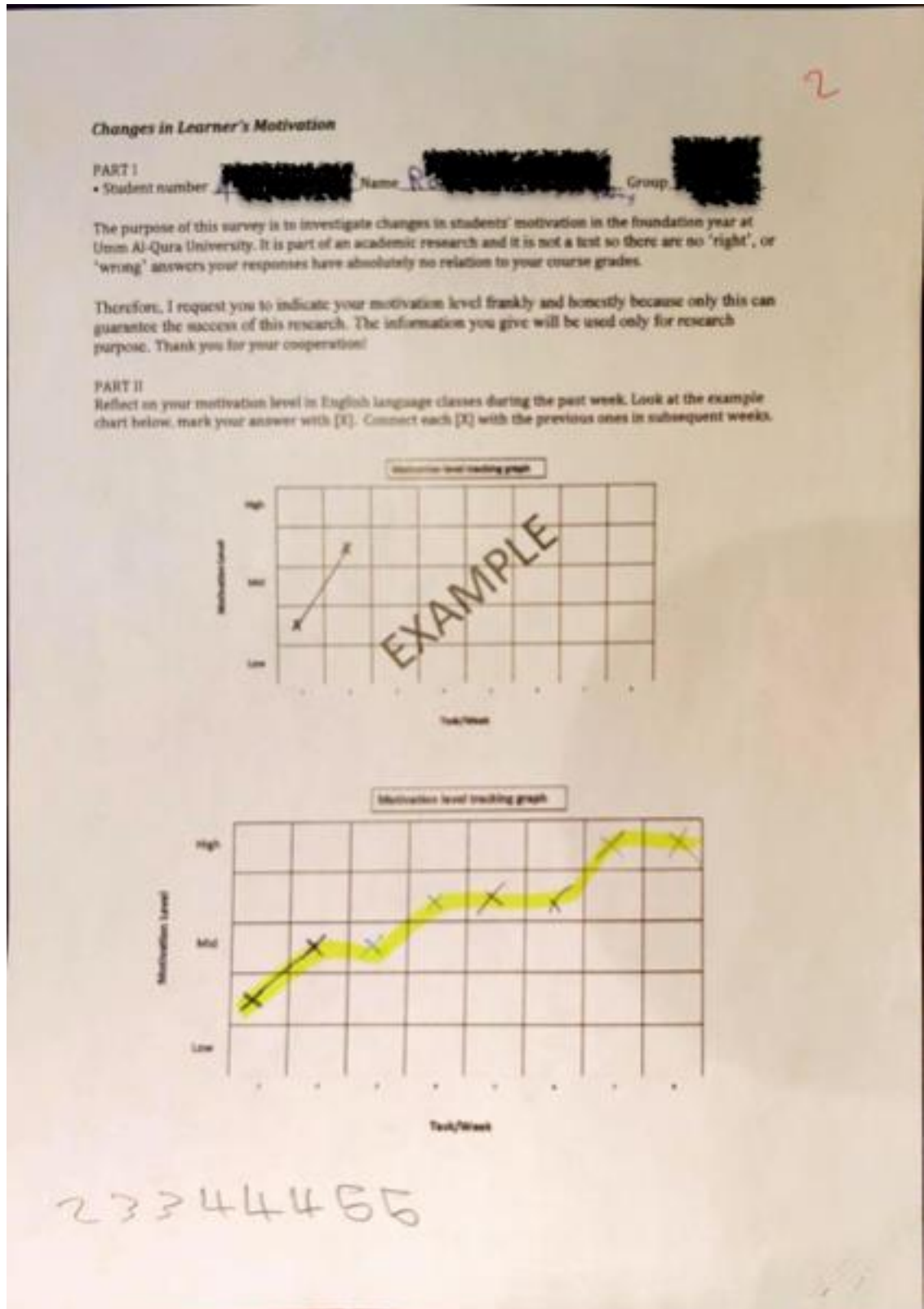
Conducting Interview

- Occasionally verify the recorder is working.
- Ask one question at a time.
- Attempt to remain as neutral as possible. (Don't show strong emotional reactions to their responses)
- Encourage responses with occasional nods of the head, "uh huh"s, etc.
- Be clam when note taking. (As it may appear as if I am surprised or very pleased with an answer, which may influence answers to future questions)
- Provide transition between major topics. (e.g., "we've been talking about [some topic] and now I'd like to move on to [another topic]")
- Stay focused on the interview. (Do not allow respondents stray to another topic, take so long to answer a question that times begins to run out)

Immediately After Interview

- Verify if the recording device worked throughout the interview.
- Make any notes on your written notes (e.g., to clarify any scratchings, ensure pages are numbered, fill out any notes that don't make senses, etc.)
- Write down any observations made during the interview. (For example, where did the interview occur and when, was the respondent particularly nervous at any time? Were there any surprises during the interview? etc.)

Appendix L. Example of a student self-plotted graph



Appendix M. Screenshot of the questionnaires in SurveyMonkey.com

TITLE	MODIFIED	RESPONSES	DESIGN	COLLECT	ANALYZE	SHARE	MORE
استمارة قياس مدى تأثير محاضرات اللغة الإنجليزية على دافعية الطلاب - مجموعة ١٠٤ - استمارة ١ Created 9/29/2019	10/8/2019	22					
استمارة قياس مدى تأثير محاضرات اللغة الإنجليزية على دافعية الطلاب - مجموعة ١٠٢ - استمارة ١ Created 10/2/2019	10/3/2019	18					
استمارة قياس مدى تأثير محاضرات اللغة الإنجليزية على دافعية الطلاب - مجموعة ١٠٣ - استمارة ١ Created 10/2/2019	10/3/2019	20					
استمارة قياس مدى تأثير محاضرات اللغة الإنجليزية على دافعية الطلاب - مجموعة ١٠٦ - استمارة ١ Created 10/1/2019	10/2/2019	21					

Appendix N. Analysis of motivation-tracking graphs using Excel

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	Column	St 1	St 2	St 3	St 4	St 5	St 6	St 7	St 8	St 9	St 10	St 11	St 12	St 13	St 14	St 15	St 16	St 17	St 18	St 19	St 20	Avrg
2	Week1	4	2	3	4	4	1	3	4	2	2	3	4	3	3	3	3	4	4	2	2	3
3	Week2	4	3	3	3	4	1	3	4	3	2	4	4	4	4	3	3	5	4	3	2	3.3
4	Week3	2	4	5	1	3	1	2	4	3	1	2	3	3	3	2	4	4	3	1	3	2.7
5	Week4	1	4	3	2	5	2	3	4	3	2	3	4	4	4	4	4	4	4	2	2	3.2
6	Week5	1	3	2	2	4	3	4	5	2	3	4	4	4	5	5	5	3	4	2	2	3.4
7	Week6	3	3	4	1	5	3	4	5	2	3	4	4	5	5	4	5	3	4	3	2	3.6
8	Week7	1	3	2	1	3	2	2	4	2	1	3	3	4	4	2	5	3	2	1	2	2.5
9	Week8	2	1	2	2	3	1	3	3	2	2	2	4	3	3	2	5	3	2	1	2	2.4

Appendix O. Initial coding Codebook

Name	Description	Files	References
Contest expansion	When the students express interest in expanding the contest to make it bigger or longer	3	10
Educational value		4	50
Games as a motivational element	When the students say that some game element motivates them	2	8
Lost in the activity	When student say that they are into the activity so much, they forget about any demotivating factors present.	2	5
Motivational Elements	All elements perceived to raise or lower their language learning motivation	1	2
++++ Positive	Elements perceived by students to raise their motivation	1	2
Activity as a motivational element	Viewing the activities as positive effect on their motivation in general	4	62
Break the routine	When the students say that the activities or the contest provided change from the routine of regular classes. This is seen as motivational element.	4	35
Collaborative-Team work	Mentioned as a motivational element. This includes Collaborative work for Treatment Level 2 Group and Teamwork for Treatment Level 1 Group.	4	23
Competition		4	28
Create creativity		4	9
Doing the activities in general		3	6
Enjoyment		4	35
Freedom in class	Means that they are free to express themselves in the class and not only follow the textbook	3	5

Name	Description	Files	References
Freedom to fail	if the student is not penalised for making mistakes or that the activity is optional. Relates to the element of playfulness.	2	4
Increase interaction	The activities allow them to interact with each other and benefit from each other's linguistic knowledge	3	18
Lessen social anxiety		4	10
Passage of Time	when student mention that passes quickly and they are not board.	3	11
Pure interest in learning English		3	7
Reward +&-	Reward here could be positive or negative. Utterances are coded as reward when they are generally mentioned as something students get in return; and not as Prize or winning specifically.	3	14
Prize	refer the prize of the contest or any physical prizes or marks. Also when they talk about winning the contest vs winning the weekly activity	4	10
Winning	none physical or marks; e.x. winning	3	14
Self-assessment	When the students say that the activities allow them to recognise their true level of English.	1	1
Speaking English only	Students view the activities as motivational when they force them to speak only in English. Mainly because the activities rules they have to follow in order to win	1	1
The Contest ++	View the concept of the contest as motivational	4	65
Topics in classes		1	3
Interesting topics		3	9
Using the language	When students say that the activities help them in using English in real-life, mainly through speaking.	3	9
----- Negative	Elements perceived by students to lower their motivation	1	2

Name	Description	Files	References
Activity as a demotivational element		1	3
Speaking Arabic	They view the activities as demotivational when they refer to speaking Arabic. They do this mainly out of excitement in order to win.	1	2
Boredom		4	16
Collaborative-Team work	Mentioned as a demotivational element. This includes Collaborative work for Treatment Level 2 Group and Teamwork for Treatment Level 1 Group.	1	6
Homework		2	8
Language exercises	Excessive language exercises from the textbook as a way to learn the language	1	4
Learning style	often students refer to regular learning style as a demotivating element	3	10
Lecturing style classes	Passive learning, meaning when the class is not interactive; students only listen to the teacher and do not get any chance to speak or express themselves	4	19
Long classes	usually students refer to 4-hour class that they take once a week	3	11
Losing	When they say that losing an activity, or several activities, demotivates them	1	2
miscellaneous demotivational elements		3	17
No reward	when they view the activities as a waste of time and effort because they are not rewarded for doing them. Reward can be grades, prizes, or personal satisfaction (good feelings, e.g. from merely winning)	1	1
Online Platform	An additional weekly online language exercises that they have to do on their own at home	2	11

Name	Description	Files	References
Social anxiety		1	4
The Contest --	They mainly say they are not interested in the concept of the contest	1	1
Too much activities	when students warn that doing anything too much it might become routine, including the activities.	4	22
Teacher personality	When they link their motivation to teacher personality.	1	1
Uninterested	When they say that they are uninterested in the activities or the contest for any reason	2	5
Too high mastery of English		2	3
Uninterested in learning a 2nd language at all		1	2

Appendix P. Revised Codebook

Name	Description	Files	References
++++ Positive Motivational Elements	Elements perceived by students to raise their motivation	0	0
Activity as a motivational element	Viewing the activities, in general (without giving any specifics), to have positive effect on their motivation.	11	138
Break the routine	When the students say that the activities or the contest provided change from the routine of regular classes. This is seen as motivational element.	11	80
Collaborative work + Team	Mentioned as a motivational element. This includes Collaborative work for Treatment Level 2 Group and Teamwork for Treatment Level 1 Group.	10	43
Competition	When students view the concept of competition to affect their motivation positively.	11	78
Create Creativity	When students state that the activities or the contest help them be more creative or allow them to express their creativity.	8	19
Enjoyment	When students state that they are enjoying doing the activities or participating in the contest (be careful of the utterances true meaning; as the word excitement often mean enjoyment).	10	79
Freedom in class	Means that they are free to express themselves in the class and not only follow the textbook. Also, when the students like that they can make mistakes without consequences (academic or otherwise) or say that they like that the activity is optional. Relates to the element of playfulness.	9	28
Increase interaction & Lessen social anxiety	When the students say that the activities allow them to interact with each other and benefit from each other's linguistic knowledge which lessens social anxiety.	11	92

Name	Description	Files	References
Pure interest in learning English	When students say that they externally motivated because they like learning English or languages in general.	8	18
The Contest ++	When students view the concept of the contest as motivational; or express interest in expanding the contest to make it bigger or longer.	11	186
Topics in classes	When student say that they like discussing new and interesting topics (mainly outside the textbook). Or when they express dislike towards certain topics in their regular classes.	6	24
Using the language	When students say that the activities would help them in using English in real-life or view the activities as motivational when they force them to speak only in English (Mainly because the activities rules, they have to follow in order to win).	8	19
----- Negative Motivational Elements	Elements perceived by students to lower their motivation.	1	1
Activity as a demotivational element	Viewing the activities, in general (without giving any specifics), to have negative effect on their motivation.	9	22
Boredom	Self-explanatory :) This include references to long classes (4-hours class that they take once a week).	11	73
Collaborative Team work -	Mentioned as a demotivational element. This includes Collaborative work for Treatment Level 2 Group and Teamwork for Treatment Level 1 Group.	3	8
Homework	Any homework + the Online Platform which is An additional weekly online language exercises that they have to do on their own at home.	5	27
Language exercises	In-class excessive language exercises from the textbook as a way to learn the language.	1	4
Learning style (Lecturing)	When students mention their regular classes or traditional learning style to affect their motivation negatively; mainly 'Passive learning' (meaning when the class in not interactive; students only listen the teacher	11	67

Name	Description	Files	References
	and do not get any chance to speak or express themselves).		
Losing	When they say that losing weekly activities or the contest, demotivates them.	6	18
Miscellaneous demotivational elements	Any demotivational elements that seem to be irrelevant to the learning process (e.g. classroom condition, administrative decisions, personal non-academic preferences, etc.)	10	30
No reward	When they view the activities as a waste of time and effort because they are not rewarded for doing them. Reward can be grades, prizes, or personal satisfaction (good feelings, e.g. from merely winning).	1	1
Social anxiety	Self-explanatory :)	4	11
The Contest --	When they mainly say they are not interested in the concept of the contest for any reason.	2	2
Too much activities	When students warn that doing anything too much might become routine in itself, including the activities. When they view the novelty of the activities or the contest as an advantage.	8	42
Educational value	When the students state that the contest, including the activities, has educational value by: - Allow them to recognise their true level of English. - Improve their English through learning new grammar, vocab, etc. - Help them improving their grades and exams.	11	146
Games as a motivational element	When the students say that some game element motivates them, including: Leaderboard and points.	8	40
Lost in the activity	When student say that they are into the activity so much so, they forget about any demotivating factors present or mention that they feel that time passes quickly, and they are not board.	10	37
Reward +&-	When the concept of Reward is viewed as positive, negative, or neutral. Utterances are coded as reward when they are generally	11	118

Name	Description	Files	References
	mentioned as something students get in return for their effort; this could be tangible reward (e.g. money), the contest's prize or the notion of winning.		
Teacher personality	When they link their motivation to teacher personality.	6	7
Uninterested	When they say that they are uninterested in the activities or the contest for any reason.	5	14

Appendix Q. Example of NVivo's 'Memos' and 'Annotations' tools

