



***The use of Project-Based Learning as a Viable
Differentiation Technique to Enhance Gifted and non-
Gifted Students' Creative Writing Skills***

دراسة حول التعلم بالمشروع كطريقة لمراعاة الفروق الفردية و تنمية الكتابة
الابداعية لدى الفائقات و غير الفائقات

**By
Hanan Shedly Ghazouani
Student ID: 120104**

Dissertation submitted in partial fulfillment of
MEd in Teaching English to Speakers of Other Languages

Faculty of Education

Dissertation Supervisor
Dr. Yasemin Yildiz

May-2014

ABSTRACT

The present empirical study investigated the use of Project-Based Learning as a viable differentiation technique to enhance gifted and non-gifted students' creative writing skills. A mixed methods approach was adopted and both qualitative and quantitative data were collated. The qualitative data was mainly derived from a case study conducted on purposefully identified and selected 4 grade 11 students (2 gifted and 2 non-gifted) who took part in a PBL experience. The researcher was a participant observer and field notes were also collected. More qualitative data was gathered from the semi-structured interviews that were conducted with the 4 participants at the end of the study. As for the quantitative data, it was mainly collected through the written products of the students and the teachers' questionnaire which investigated the teachers' perceptions about PBL.

The findings of this study indicated that the gifted and non-gifted students' creative writing skills measured by Majid, Tan and Soh's Language Creativity Rating Scale could be improved in a PBL experience. It was also found that a set of internal and external factors that shape and enhance creative writing are prominent in a PBL environment. The teachers' questionnaire revealed that the teachers who had been implementing PBL in their classrooms demonstrated a positive attitude about such a student-centered approach. However, some concerns about the challenges that teachers face during the implementation of PBL were unfolded. The results of this study confirm the effectiveness of PBL as a differentiation tool that could enhance students' creativity and their creative writing skills.

KEY WORDS: Gifted and non-gifted, giftedness, identification, Project-Based Learning, curriculum differentiation, creative writing, creativity, motivation

خلاصة البحث

يهدف البحث التجريبي الحالي الى دراسة استخدامات التعلم القائم على المشاريع كطريقة لمراعاة الفروق الفردية و تنمية مهارة الكتابة الإبداعية لدى فئة الطلاب الفائقين و غير الفائقين. و قد استخدمت الباحثة مزيجا من أساليب البحث لجمع البيانات النوعية والكمية. واستمد البحث المعطيات النوعية من دراسة طبقت على أربع طالبات تم اختيارهن من الصف الحادي عشر طالبتان فائقتان و طالبتان غير فائقتين للمشاركة في تجربة التعلم القائم على المشاريع. و تمثل دور الباحثة في المشاهدة و جمع الملاحظات كما جمعت المعطيات النوعية من المقابلات التي دارت بين الباحثة و الطالبات الأربع عند نهاية الدراسة الميدانية.

اما البيانات الكمية فقد جمعت من الأعمال الكتابية للطالبات و الاستبانات التي اجريت على المعلمين و المعلمات بغاية دراسة فهمهن لطريقة التعلم بالمشاريع .

وتدل نتائج هذا البحث على امكانية صقل و تنمية مهارة الكتابة الإبداعية و التي تم قياسها بجدول الكتابة الابداعية المقتبس عن ماجد و تان وسوه لدى فئة الطلاب الفائقين و غير الفائقين في تجربة تعتمد التعلم بالمشاريع. كما تم التوصل الى وجود جملة من العوامل الداخلية و الخارجية في بيئة تعليمية تعتمد طريقة التعلم بالمشاريع يمكنها تشكيل و تحسين مهارة الكتابة الإبداعية. كما اظهر الاستبيان الذي طبق على المعلمات و المعلمين ان الذين يطبقون طريقة التعلم بالمشاريع في صفوفهم الدراسية اظهروا موقفا ايجابيا من مقارنة مواصفات محورية الطالب في العملية التعليمية . غير أن بعض المخاوف برزت من التحديات التي تواجه المعلمين أثناء تطبيق طريقة التعلم بالمشاريع. تؤكد نتيجة هذا البحث نجاعة طريقة التعلم بالمشاريع كوسيلة لمراعاة الفروق الفردية و التي يمكن أن تعزز الإبداع لدى الطلاب وتنمي مهارات الكتابة الإبداعية لديهم.

ACKNOWLEDGEMENTS

While going through this long journey of research and learning many people supported me to conclude it successfully. I would like to seize this opportunity to thank everyone of them. First, I would like to express my gratitude to Dr. Yasemin Yildiz , my dissertation supervisor who did not spare any effort to help me with her valuable feedback and insightful guidance.

I would also like to express my thankfulness to all the students and teachers who took the time to participate in this research. I am grateful to everyone who helped me at the British University to successfully reach the final step in my Masters of Education.

I am so also indebted to my husband who was always encouraging me and supporting me to make this aspiration come true. My sincere gratitude is also expressed for my lovely sons, Ahmed and Rayen who have been so patient with me and surrounded me with their love.

I also owe a lot of debt to my parents who are behind every success I achieved in my life, particularly, my mother who has always been my source of inspiration.

Table of Contents

Abstract (English)	i
Abstract (Arabic)	ii
Acknowledgement	iii
Table of Contents	iv
List of Tables	vii
List of Figures.....	viii
 Chapter One: Introduction	 1
1.1 Background of the study	2
1.2 Statement of the problem	3
1.3 Purpose and Significance of the study	4
1.4 Structure of the study	5
Chapter Two: Literature Review	6
2.1 Giftedness.....	6
2.1.1 Definition of Giftedness	6
2.1.2 Identification of the gifted and talented.....	8
2.2 Curriculum Differentiation.....	9
2.2.1 Gifted and Non-Gifted Students' Characteristics and Learning Styles	11
2.2.2 Curriculum as Motivation	13
2.2.3 Curriculum as Challenge	14
2.3 The Characteristics of Project Based Learning.....	15
2.3.1 The Use of Technology	16
2.3.2 Project - Based Learning as a Formative Assessment Tool	16
2.4. Creativity	17
2.4.1 Enhancing Creativity: The teacher's role	18
2.4.2 Creative Writing	18
Chapter Three: Methodology	21
3.1 Research design.....	21
3.2 Sampling	23
3.2.1 Students	24
3.2.2 Teachers.....	25
3.3 Instruments	26
3.3.1 Language Creativity Rating Scale	26

3.3.2 Semi-Structured Interviews	26
3.3.3 Questionnaire.....	27
3.4 Role of The Researcher	28
3.5 Procedures	29
3.5.1 Context	29
3.5.2 Description of the study	29
3.6 Ethical Considerations	31
Chapter Four: Findings.....	32
4.1 Results from the Language Creativity Rating Scale (Instrument 3.3.1)	32
4.2 Results from the Semi-Structured Interviews (Instrument 3.3.2) and Field Notes	35
4.2.1 Internal Factors	35
4.2.1.1 L2 Proficiency.....	35
4.2.1.2 Motivation and Task Commitment	36
4.2.2 External Factors	37
4.2.2.1 The Use of Technology.....	37
4.2.2.2 Feedback	37
4.2.2.3 Familiarity of the topic.....	38
4.3 Results from the questionnaire(Instrument 3.3.3).....	38
4.3.1 Results from the open-ended questions.....	39
4.3.2 Results from the closed ended questions.....	40
Chapter Five: Discussion.....	43
5.1 PBL and Differentiation.....	43
5.2 PBL and Creativity	44
5.3 PBL and Language Proficiency	44
5.4 Internal Factors	45
5.5 External Factors	47
5.6 PBL From Teachers' Perspectives.....	49
Chapter Six: Conclusion	51
6.1 Recommendations.....	52
6.2 Limitations and future research.....	52
References.....	54
Appendices.....	
Appendix A: Language Talent Rating Scale	62
Appendix B: Language Creativity Rating Scale	63

Appendix C: Language Creativity Score Sheet	64
Appendix D: Questions for the Semi-Structured Interviews	65
Appendix E: Questionnaire: Teachers' Perceptions About Project-Based Learning(PBL) .	66
Appendix F: Grant's Elements of Project-Based Learning (PBL)	68
Appendix G: WebQuest.....	69
Appendix H: Persuasive Essay Outline	70
Appendix I: Persuasive Writing Self-assessment Rubric	71
Appendix J: Informed Consent Form	72
Appendix K: Gifted Student 1 Essay (Draft 2).....	73
Appendix L: Gifted Student 2 Essay (Draft 2)	75
Appendix M: Non-Gifted Student 1(Drafts 1and 2).....	77
Appendix N: Non-Gifted Student 2 (Drafts 1and 2).....	78

List of Tables

Table 1: Research Design	23
Table 2 : Gifted and non-gifted students' profiles	25
Table 3: Teachers' Background Information about PBL.....	39
Table 4 : Challenges and Concerns about the implementation of PBL	40
Table 5 : Results from Project Based Learning and Creativity Section	40
Table 6 : Results from Role of The Teacher Section	41
Table 7 : Results from Professional Development Section	41

List of Figures

Figure 1 : Renzulli's Three-Ring Model of Giftedness	7
Figure 2 : Levels of Blooms' Taxonomy	13
Figure 3: Gifted and non-gifted students writing scores.....	32
Figure 4: Gifted Students' Scores in the creativity components	33
Figure 5 : Non-Gifted Students' Scores in the creativity components	34
Figure 6 : Gifted Students' Scores in the language proficiency components.....	34
Figure 7 : Non-Gifted Students' Scores in the language proficiency components.....	35

CHAPTER ONE

INTRODUCTION

The call for student-centred instruction and meeting the individual needs of all students has become one of the facets of modern education all over the world. Namely, the discussion about the best ways to respond to students' individual needs has become one of the main concerns in the field of education. In the USA, for instance, The No Child Left Behind Act of 2001 (NCLB) issued by the American government, was mainly meant to establish equity between all American students and provide them with equal opportunities to learn. However, as claimed by Davis, Rimm & Siegle (2011, p.16) "The gifted [were] left behind in the era of No Child left behind" because this act benefited the low-achievers but put the gifted students at a disadvantage. The main concern is that the NCLB (2001) initiative has encouraged efforts for equal educational outcomes at the expense of a suitable curriculum for gifted students (Gallagher, 2009). However, responding to students' individual differences implies satisfying the needs of those at the two extremes, that is, the gifted or high achievers and the non-gifted who are usually referred to as low achievers. Each of these two groups needs a special type of provision so that the gifted do not feel bored and the non-gifted (low achievers) are not left to struggle with their learning processes.

Henceforth, a differentiated curriculum becomes a necessity, particularly in the mixed ability classroom. Tomlinson (2001) perceives differentiation as a process of creating various differentiated learning opportunities within a high-quality curriculum to maximize students' engagement, efficiency of learning and cognitive growth. Nonetheless, the dilemma that teachers face is how to accommodate both the gifted and the non-gifted simultaneously. In order to successfully address the different styles and higher abilities of the gifted in the regular mixed ability classroom, Sousa (2003) suggests that teachers should create a flexible learning environment and differentiate content to challenge gifted students and avoid boredom among them. Moreover, Tomlinson (2001) recommends that innovation excites the brain. This means that differentiation is not easy to achieve in the traditional classroom; what is needed is rather a different classroom setting that can stimulate learning (Tomlinson, 2001). In this sense, teachers need to integrate new strategies and techniques in their classrooms in order to be able to meet their students' different needs. Thus, the use of Project

Based Learning (PBL) and the integration of technology can be acknowledged as part of the effective educational paradigms prevailing in our digital age.

In effect, Project-Based Learning (PBL) that was first introduced by Dewey (1938) has been highly praised as an effective instructional approach in recent research. According to Thomas (2000), Project-based learning (PBL) represents a model where learning is organized around projects. Moreover, Blumenfeld et al. (1991, p. 369) define Project-Based Learning as “a comprehensive approach to classroom teaching and learning that is designed to engage students in investigation of authentic problems”. In this way, PBL is commonly believed to be an influential teaching strategy that promotes autonomous learning (Cheng et al., 2008). Moreover, Wolk (1994 in Tamim & Grant 2013, p. 73) refers to PBL as an “outlet for every student to experience success” since it can nurture intrinsic motivation, and improve a number of abilities and skills. In the field of Second Language Acquisition (SLA), research has also proved that literacy can be improved by providing students with various opportunities to interact in a communicative context using authentic and linguistically challenging materials that are relevant to them (Kasper, 2000). Kasper (2000) also adds that when they search for information in a PBL context, ESL students can enjoy better opportunities to process both linguistic and content information. To set an example, in an exploratory study that was conducted in Singapore, Majid, Tan and Soh (2003) found that the use of the internet helped to enhance children’s creative writing in terms of fluency and elaboration. Hence, PBL with its motivating and challenging aspects seems to be an adequate solution to promote learning and satisfy students with different learning styles and abilities.

1.1 Background of the study

The rationale behind this study is to investigate how PBL can be a solution to satisfy the needs of both gifted and non-gifted students in the English class and to enhance their creative writing skills. The study is conducted in one of Madaras Al Gad (MAG) high schools for girls in the United Arab Emirates. Therefore, an insight into the educational system of this country would be useful since it constitutes the background of the research. Actually, the UAE is a flourishing country that has experienced tremendous economic progress and many social changes in a short period of time (Kapiszewski, 2000). This rapid growth has also impacted the field of education in the UAE and generated general interest in improving the quality of its educational system. Therefore, a number of policies, plans and programs have been developed to improve the status of education and to provide all students with equal

opportunities so that their talents are acknowledged (The UAE National Report on Education, 1996). However, Gaad et al. (2006) argue that the education sector still needs to be improved to conform to the requirements of modern economic progress.

For example, gifted education, that has attracted worldwide attention, has also raised interest in the UAE recently. The reports and official papers submitted by the ministry of education to the UNESCO demonstrate an interest in supporting the gifted and talented. However, the available provisions and programs in government schools do not mirror this interest (Ghad et al., 2006). In a study conducted by Al Obaidli (2006) in the UAE public schools, it was discovered that the existing educational system does not meet the needs of the gifted and talented students. In reality, the identification of the gifted and talented is mainly based on achievement test scores and teacher nominations whereas IQ tests and creativity tests are planned but rarely used (Al Obaidli, 2006). Adding to this issue of under-identification, Al Obaidli (2006) reported that acceleration and curriculum differentiation represented only 1% of the provisions available for gifted students across the country. Programs for the gifted are mostly restricted to competitions and field trips which may not contribute much to improve such students' capabilities (Al Obaidli, 2006). The Ministry of Education (MoE) has made several attempts to give more importance to gifted education. The MoE strategic plan 2010-2020 included the Student Equality Initiative that was meant to improve programs for students with special educational needs (SEN) as well as programs for gifted students. Also, the "School for All" guide (2010) issued by the Special Education Department in the MoE was the first of its kind in the UAE. It provides a clear description of the procedures for identification and the provision of special education services for SEN and gifted students. However, in practice, gifted students are still under-identified and most schools mainly resort to achievement test scores as the only means of identification and almost no special detailed programs are offered for the gifted.

1.2 Statement of the problem

As a theory, differentiation has been given considerable prominence by the ministry of education in the UAE schools and in all subjects. Teachers are always asked to differentiate their instruction to cater for the academically gifted and non-gifted. However, until today this theory has not been really put into practice. For instance, in order to be able to differentiate the curriculum for the gifted, we first need to identify them and here lies the problem. Indeed, the under-identification of gifted students in the UAE schools has caused these students to be

neglected; they might be sitting bored in the classroom where no special programs are provided for them, and compelled to listen and go through things that they have already mastered. Additionally, the field of gifted education suffers from the lack of empirical research. Much has been written about the ways of identification and provision programs for the gifted. However, studies that look at the appropriate practices or interventions to develop their talents are scarce. This paucity of empirical research on adequate practices has also limited the uniformity and quality of gifted education.

1.3 Purpose and Significance of the study

The purpose of this empirical study is to investigate how PBL can be an adequate differentiation technique to enhance the academically gifted and non-gifted students' creative writing skills. By looking at the practical ways that can help meet the needs of the gifted, this study has as a purpose to bridge a gap in the literature. In fact, research on gifted education is very sparse in the UAE and very few studies have been conducted. Previous studies have mainly focused on the methods of identification and the importance of motivation for the gifted. However, no empirical study has been conducted to inform the field about what interventions can be useful to respond to the needs of students with high abilities. Therefore, the significance of this study stems from its empirical aspect. The field needs research that focuses on the relationship between well-planned practices and learning outcomes (Dai, Swanson, & Cheng, 2011).

Another significant aspect of this study deals with creative writing. In an ESL context, one of the most challenging skills for students to acquire is writing. Furthermore, Project-Based Learning has been claimed to be an effective method for motivating disengaged students but no studies investigating this assumption were found (Thomas, 2000). This study does look at the effect of PBL on two non-gifted students who are generally disengaged. Hence, with its empirical aspect, its focus on gifted as well as non-gifted students and the enhancement of their creativity, this research can add a lot of valuable information to the field of education in the UAE. This empirical study is built on two hypotheses. The first hypothesis presumes that as a learner-centered approach, Project- Based Learning can be a reliable technique to differentiate instruction and meet the needs of the academically gifted and non-gifted students. The second hypothesis assumes that in an ESL context, PBL can be used as a motivating and a formative assessment tool to improve gifted and non-gifted students'

creative writing skills through process writing and scaffolding. To investigate these hypotheses, the researcher designed the following research questions:

1. To what extent can PBL enhance gifted and non-gifted students' creative writing skills?
2. What are the internal and external factors that shape gifted and non-gifted students' creative writing in a PBL experience?
3. What are high school teachers' perceptions of their role in PBL and in nurturing students' creativity?

1.4 Structure of the Study

This dissertation comprises of six chapters. Chapter 1 has introduced the topic, the research background, a statement of the problem, the purpose and significance of the study in addition to research questions and structure of the study. Chapter 2 is a review of related literature. It covers all the concepts and theories that are suggested by the research topic such as giftedness, curriculum differentiation, Project-Based Learning, and creative writing. Chapter 3 frames the methodology of the current study. It describes the research design, the mixed method approach adopted in the present study, the research instruments, the role of the researcher and the procedures of data collection. Chapter 4 presents the qualitative and quantitative findings collected from this empirical study. Chapter 5 discusses the implications of these findings in relation to the research questions and with reference to the literature. Finally, Chapter 6 provides a summary of the results, the pedagogical recommendations and the limitations of the study with ideas for future research.

CHAPTER TWO

LITERATURE REVIEW

The main aim of this study is to investigate how the use of Project-Based Learning (PBL) as a differentiation technique can affect both the academically gifted and non-gifted students' learning with special focus on their creative writing skills. Therefore, this chapter offers a deep insight into the literature review of the different components of this study. First, it is highly important to understand what is giftedness. Along with this, it is crucial to look at the different ways of identification in order to be able to identify who are the gifted and what distinguishes them from the non-gifted. Thereafter, a review of the literature is included about PBL as one the best practices that can allow educators to challenge the high cognitive abilities of the gifted students and scaffold learning for the non-gifted. Furthermore, focus on giftedness naturally raises the theme of creativity that will be looked at with special focus on creative writing.

2.1 Giftedness

2.1.1 Definitions of giftedness

From Plato to Gardener, educators and experts have struggled to define and deal with those students who stand out because of their special and higher abilities. In fact, the recognition that people differ in their aptitudes for study existed since the era of ancient Greece. But in the modern world, it seems that the US can be considered as the cradle of gifted education. Accordingly, Davis, Rimm and Siegle (2004) contend that any debate about the definitions of gifted and talented should refer to the original definition that was provided by the U.S Office of Education (USOE) (Marland, 1972):

Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and services beyond those normally provided by the regular school program in order to realize their contribution to self and society.

This federal definition appears to be comprehensive as it identifies what makes giftedness and highlights differentiated instruction for the gifted. Nonetheless, the USOE definition was later criticized by Renzulli (1978) because of its restrictiveness and its failure to include non-intellective (motivational) factors as well as being subject to misinterpretation and misuse by educators. Alternatively, he suggested the Three-Ring Model (See Figure1) which became one of the most influential theories of giftedness. Renzulli reported that giftedness is the result of the interaction of three qualities that must work together: above-average ability, creativity, and high levels of task commitment.

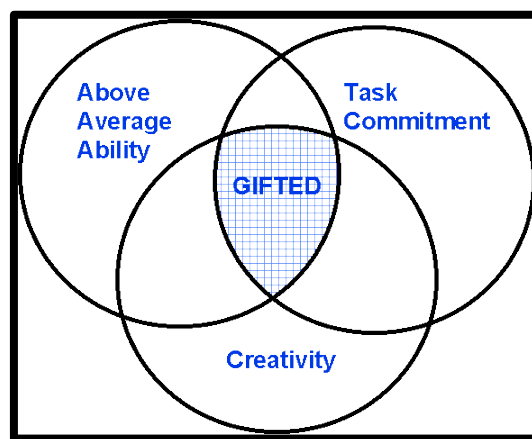


Figure 1: Renzulli's Three-Ring Model of Giftedness (A Report for The Council of Curriculum, Examinations and Assessment (CCEA) 2006, p.16)

Moreover, in some states in the US, the word *gifted* is defined as having high IQ with reference to the term *intelligence quotient* that measures the intelligence level of children as well as adults. Additionally, Gagné (1991) defines giftedness as above-average aptitude in intellectual and creative abilities. However, with the large variation in the range of definitions of gifted and talented students, and the lack of clarity it was difficult to reach a consensus.

In conclusion, to transcend this dilemma about the definition of gifted and talented, Manning (2006) emphasized that whatever the definition of gifted and talented is, it is fundamental to be aware of these children in the classroom. Educators should focus on their needs and create a learning environment that can stimulate their high capacities. Hence, the identification of the gifted and talented is an inevitable step in order to be acknowledged by those who are responsible for their education.

2.1.2 Identification of the gifted and talented

In order to be able to cater for the very specific needs of the gifted and talented, it is crucial to be able to recognize them and acknowledge their existence in our classrooms. Henceforth, the field of gifted education emphasizes the identification process and a lot of studies have been carried out to find the ‘truly’ gifted child. According to Davis, Rimm & Siegle (2011), the first priority of gifted education is identification. In order to be able to identify the gifted and talented, a set of specific criteria is needed. However, It seems that the wide range of strategies, policies and programs of identification have hindered the formation of these clear guidelines, which means that there is no one agreed-upon theory of identification. Nevertheless, the literature reveals that a few influential theories about what constitutes giftedness and intelligence have been developed. Lewis Terman who was a pioneer with his work on gifted children, developed the Stanford–Binet Intelligence Scale that was published in 1916. Since then, IQ tests have been very popular and giftedness has been equated with high scores in IQ tests. However, IQ test scores were subject to a lot of criticism due to their restrictiveness and exclusiveness. Thus, the validity of such instruments to identify gifted students became questionable as they focused on measuring intelligence and excluded other areas in which giftedness can be manifested such as creativity and motivation. As a result, many educators around the world called for alternative identification methods as it was recognized that “giftedness extends beyond an IQ number” (Davis, Rimm & Siegle, 2011, p.60) .

This led to the appearance of more inclusive and multidimensional identification methods. One of the most influential theories that adopted multidimensional criteria was Renzulli’s Three-Ring Model which had been presented above in Figure1. Renzulli (2003) highlighted that gifted behavior is the reflection of an interaction between three clusters of human qualities which are: the ability of being above average but not inevitably high, high levels of creativity and high levels of task commitment (motivation). Another componential and very popular theory about human intelligence was developed by Sternberg (1991) with the initiation of his Triarchic Model. Sternberg (2003) pointed out that intellectual giftedness cannot be measured by a single IQ number and stated that “unless we examine multiple sources of giftedness, we risk missing identification of large numbers of gifted individuals.” (Sternberg, 2003 cited in Davis, Rimm & Siegle 2011, p.54) .

A number of other theorists came up with multifaceted theories that focused mainly on talent and talent development rather than giftedness. For instance publications by Gardner (1983), Bloom (1985), Csikszentmihalyi et al. (1993), and Gagne' (1999) have presented new theoretical notions of specific human abilities that added momentum to the movement towards a broader definition of intelligence and a multidimensional approach. This has paved the way for a broadened conception of the role of educators in the development of students' talents and competencies. Indeed, after long years of research on intelligence and its components, Gardner (1993/1994) proposed his new theory of Multiple Intelligences (MI) that suggested seven distinct types of intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal. MI theory is an uncomplicated approach that has been attractive and appealing to teachers (Davis ,Rimm &Siegle, 2011).

In conclusion, it can be noted that the identification of the gifted and talented is a challenging task. Pfeiffer (2011, p.7) pointed out that “ identifying high-ability students is not easy business, especially as we move toward a more sophisticated, nuanced, and developmental approach to giftedness.” However, identification should not be an aim in itself but rather a means that will lead to the provision of suitable services to meet the learners' needs (Coleman, 2003). Beyond the identification process, the ultimate success of gifted education necessitates a continuous connection between the multidimensional assessment information and multifaceted provisions or interventions.

2.2 Curriculum Differentiation

Speaking about students' individual needs and highlighting individual differences have led to the appearance of a very important concept in the field of education. Indeed, along with the belief in 'no one size fits all', differentiation emerged as a very important theory of instruction. Tomlinson and McTighe (2000, 2006) defined differentiation as a teaching philosophy based on the conviction that teachers should adapt instruction to meet students' differences through practices that provide tasks adapted to their various learning needs. In this way, Tomlinson (2004) perceives differentiation as a match between content (what the students learn), process (how they learn), product (how the learning is demonstrated) and the procedures through which learning takes place (environment). She also highlights that the students' readiness level, their interests, and their learning preferences should be considered. Tomlinson (2001) further argues that a mass of new and fascinating research has been accumulated about how the human brain learns and this information should be used to

renovate both instruction and assessment systems. Additionally, she points out that meeting the needs of diverse learners should not just be a theory but an imperative practice. As a matter of fact, differentiation simply consists in adjusting lessons, assignments, classroom procedures, and assessments to meet the various student needs. Whether the students are low-achievers, advanced, or somewhere in between, good teaching is merely ensuring they have become proficient at their subjects (Tomlinson, 2001). Later, Tomlinson and Jarvis (2009 cited in Davis et al., 2011) added that Differentiation is based on six principles that can be summarized as follows:

- 1) Students learn when they experience a moderate level of challenge
- 2) As students have different skills, so moderately challenging activities also need to differ
- 3) Students become more motivated and engaged if tasks and content are appealing to them
- 4) Students have the right to build and discover their areas of interest
- 5) Students have multiple learning profiles that define how they learn best
- 6) Students learn best when they feel safe, supported and esteemed.

Hence, one of the main characteristics of differentiated instruction as described by Tomlinson (2001) is that it is student centered. For her, the goal of this theory is to make learning engaging and motivating. Similarly, Davis et al. (2011, p.145) contend that “When teachers differentiate, all students learn more because each student has the opportunity to learn what he or she is ready and motivated to learn”. Furthermore, Tomlinson (2001, 2004) highlighted the fact that students should be given responsibility for their own learning and that differentiation includes choice. In the same way, Roberts and Inman (2007) declared that differentiation takes into account the students’ needs, their own interests as well as their abilities. This implies that proactively adapting the curriculum, the teaching methods, the resources, the learning activities, and the students’ products to meet their individual needs demand pedagogical approaches that can help maximize learning opportunities for all learners as they become more engaged and experience cognitive growth (Tomlinson et al., 2003; Tomlinson & Jarvis, 2009).

To conclude, differentiation is where learning matches the students’ needs, and this matching maximizes challenge, enhances motivation, and increases autonomy and learning achievement. Differentiating for the gifted and talented students should consider the extras that can be provided beyond what other average students are studying in the class (Report

for The Council of Curriculum, Examinations and Assessment, 2006). Accordingly, Sousa (2003) reported that even though gifted students are expected to learn the same rudimentary conceptions, facts, and skills as all other students, it should be noted that they make connections faster, work better with abstractions and usually possess deep interests generally found in older people. Therefore, Sousa (2003) believes that such students need to work with the curriculum at advanced instructional levels, and at a faster pace using a selection of resources that are suitable for their learning style. In his comparative study about gifted students, Cantrell (2012) suggests that effective differentiation for the gifted and talented should include exploring and understanding the nature of the gifted and then deciding how to help them.

2.2.1 Gifted and Non-Gifted Students' Characteristics and Learning Styles

Students differ from each other in many ways. Indeed, they differ “in terms of learning goals, prior knowledge, learning styles, thinking skills and cognitive style” (Sahabudin & Ali, 2013, p. 712). Due to these differences, Zajac (2009) claims that educators and researchers should find out about the appropriate ways to ensure that students' individual needs and preferences can be satisfied. In order to achieve this goal, it is thought that only experienced teachers are able to differentiate and adapt their teaching methods according to their learners' abilities (Sahabudin & Ali, 2013). Actually, not all teachers are able to differentiate instruction as this condition requires highly careful observation by the teacher of each student. However, Tomlinson's (2001) work on differentiated instruction has added a lot of useful and valuable information to the field of education. In order to be able to satisfy students' individual needs, Tomlinson (2001) advises teachers to start by identifying the students who have special needs, and then think how to adapt instruction to ensure that they can learn and achieve. She also recommends that teachers should create a profile for each student by using both formal and informal tools to better know their students. A profile might include factors such as learning styles, academic giftedness, personal interests, multiple intelligences, and other elements (Tomlinson, 2001).

For instance, as far as gifted students are concerned, research and literature have proven that gifted students have unique characteristics. Indeed, they do not only differ from other average students but they also differ among themselves. Namely, gifted students differ in

their cognitive and language skills, interests, learning styles, motivation, personalities, behavior and backgrounds (Davis, Rimm & Siegle, 2011). Nonetheless, in spite of this diversity within the gifted population, many studies have also demonstrated that this specific type of learners has many common characteristics. For instance, both Robinson (2008) and Pfeiffer (2009) assert that some characteristics that are commonly associated with giftedness include high language and thinking skills, perceptive and natural understanding of conceptions, long-term memory, avid curiosity, high ability to connect incongruent ideas and comprehend relationships, rapid learning, and high sensitivity. The researchers also claimed that gifted learners are rated higher in self -confidence, leadership skills, perseverance and desire to excel. Another recurrent trait of gifted learners is motivation and persistence. In fact, high motivation and thirst for learning associated with their curiosity and high conceptual skills can lead to remarkably advanced accomplishments. Gifted students' learning styles also match with these common characteristics such as high motivation, self-confidence, independence and persistence. Accordingly, Griggs and Dunn (1984 in Davis, Rimm & Siegle , 2011) noted that gifted students are mostly independently self-motivated rather than teacher-motivated learners. This means that they delight in flexible unstructured learning tasks rather than in the highly structured tasks that are preferred by less-able students. They prefer active approaches to learning and can learn through different sensory channels encompassing visual, auditory, tactile as well kinesthetic.

As for the non-gifted (low-achieving) students, Bloom's Taxonomy (Bloom, 1956) has had a profound effect on their education by emphasizing the difference between "low-level" and 'high level' students in terms of academic thinking. Therefore, 'Low level' thinking includes comprehension and knowledge acquisition, whereas higher levels emphasize analysis, synthesis and evaluation. This implies that academically gifted and non-gifted students may also differ in their cognitive and thinking skills. Figure2 below represents the different levels of thinking as identified by bloom. Sousa (2003) used it to demonstrate how teachers should differentiate for the gifted and the non-gifted. Indeed, the gifted students are able to go up the ladder in terms of complexity whereas the non-gifted can be only challenged in terms of difficulty.

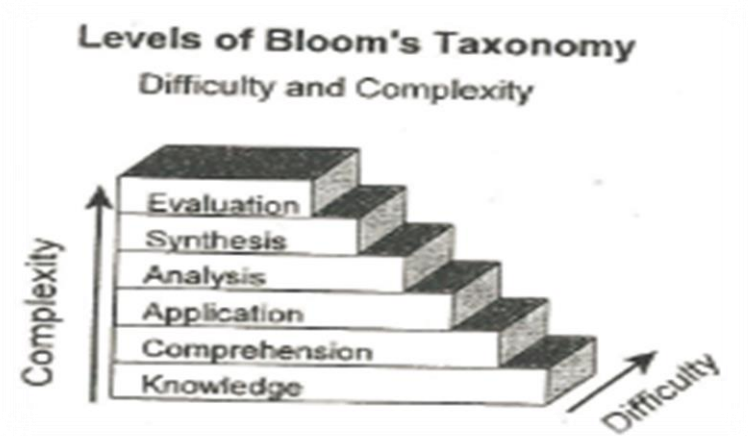


Figure2: Levels of Blooms' Taxonomy

Sousa (2003, p.73)

Yet, in a comparative study between the learning styles of low and high achievers that was conducted by Caldwell and Ginther (1996), the results indicated that “low motivation is a critical factor in student achievement” (p.145). Indeed, these researchers claimed that the main differences between low and high achievers were internal variables related to motivation as high achievers in this study showed higher intrinsic motivation. Moreover, Schultz (1993) found that achievement motivation is an important facilitator of academic performance. As such, this will be further discussed in the next section.

2.2.2 Curriculum as Motivation

Motivation has been recently defined as “the process whereby goal-directed activity is instigated and sustained” (Schunk, Pintrich,&Meece, 2008, p.4). In psychology and educational research, motivation is usually defined in a way that takes into account both personal and environmental factors (Clinkenbeard, 2012). Therefore, motivation is frequently divided into two distinct types: intrinsic and extrinsic (Schunk et al., 2008). Clinkenbeard (2012) argues that individuals who are intrinsically motivated to learn usually show interest, curiosity and concentration on the task, whereas those who are extrinsically motivated are more interested in the aftermath of learning, such as grades and prizes more than the task itself. In reality, most people are motivated by a mixture of intrinsic and extrinsic factors that might differ according to the task. Ames (1992) reported that research on achievement motivation in particular has focused on exploring and developing methods to foster learning goals, or task commitment. Moreover, Caldwell and Ginther (1996) state that a significant body of study (Dunn & Dunn,1992; Hodges, 1985; Pizzo, 1981) has indicated that the

achievement of all students might be improved by providing a type of instruction that is consistent with each student's learning style. However, this is a goal that cannot be achieved in the traditional classroom as many high school low achievers have learning styles that are incompatible with the traditional instructional methods. Conversely, "enhancing motivation requires that students become active participants in their own learning with teachers assuming a less controlling role." (Caldwell & Ginther, 1996, p.145)

2.2.3 Curriculum as Challenge

The call for a challenging curriculum is one of the most advocated areas among those who work with gifted students such as Renzulli and Reis, (1991), and VanTassel-Baska (2005). The argument for increasing the challenge in the curriculum for gifted students revolves around the belief that an unchallenging curriculum leads to boredom and does not offer gifted students real opportunities to learn. Researchers also presume that students at the lowest and the highest levels of ability are those who are at most risk for experiencing boredom (Acee et al., 2010; Pekrun et al., 2010). Yet, VanTassel-Baska (2011) claimed that since most conceptions of giftedness include a defining component of advanced potential in comparison with age peers, a more challenging curriculum and more advanced instruction are needed. Additionally, attending to student ability is rooted in Vygotsky's description of the zone of proximal development. When students are given tasks with a level of moderate challenge, they tend to develop persistent efforts to learn even if the tasks are difficult (Csikszentmihalyi et al., 1993; Zaretshii, 2009). Therefore, if schools are interested in promoting students' levels of achievement, they should expose those students to challenging materials that stimulate their continuous growth (Little, 2012).

Therefore, looking into the possible and available provisions for the gifted is really useful as it will inform us about the variety of plans and programs that can be tailored to respond to their special needs. Commonly, it is conceived that, because of their intelligence and capacity to learn faster than their peers, gifted students need accelerated instruction, at a higher level that matches their achievement levels and at a faster pace (Feldhusen 2001). In this way, the development of a differentiated curriculum where valuable ideas from various content areas are integrated and where the characteristics and needs of gifted students are considered, can help promote the continuous academic and emotional growth of such learners.

2.3 The Characteristics of Project Based Learning

Projects are defined as tasks that are based on interesting questions or problems where the students are involved in problem-solving, decision making and are given the opportunity to work independently over an extended period of time to produce genuine products or presentations (Thomas, 2000). In this light, Moursand (1999) identified authentic content and assessment, teacher's guidance and clear educational goals as important features of PBL. Adding to that, Thomas (2000) identified five main criteria for PBL: projects should be central to the curriculum, include a driving question, involve constructive investigation, enhance the student's autonomy and be realistic. He claims that in a PBL environment, the students are responsible for their own knowledge through active learning, interaction with the environment, working independently or in teams, whereas the teacher's role is restricted to guidance and facilitation. Thus, Tamim and Grant (2013) view Project-based learning as an instructional model that is based on the constructivist approach to learning (Vygotsky, 1978) that calls for experiential and collaborative learning, and promotes student-centered instruction. From a study conducted about PBL, Grant (2002, p.73) concluded that some common characteristics to the implementation of PBL are "an anchor of the activity, a task, an investigation, provision of resources, scaffolding, collaboration, and opportunities for reflection and transfer".

Many studies that have investigated the effect of PBL on students' learning outcomes have proved that it is effective. For instance, Noe and Neo (2009) found that students' interest, their presentation and communication skills as well as their critical thinking abilities, were enriched when they worked on a PBL activity. This implies that Project-based learning has been proved to benefit students' learning. Accordingly, Wolk (1994, p.44) described PBL as an "outlet for every student to experience success" as it has the potential to enhance intrinsic motivation, and improve many skills and abilities. Indicators about the effectiveness of PBL in enhancing the students' learning achievements and their motivation levels are well acknowledged in the literature. In this respect, Orevi and Danon (1999) commented that some of the advantages of PBL from the students' perspective include developing data collection and presentation skills, improving thinking skills, enhancing motivation through independent learning and matching personal learning styles. Similarly, many other researchers consider PBL as an outstanding form of instruction to encourage self-learning of students (Chang & Lee, 2010; Moursund, 1999). In conclusion, PBL is described as a problem-solving method

which helps to challenge students and build constructive skills (Knoll, 1997). Subsequently, PBL can heighten motivation for learning and improve learning achievements for students (Shih, Chuang & Hwang , 2010). As one of the student-centered learning pedagogies, Project-based learning has been found to be an effective differentiating strategy.

2.3.1 The Use of Technology

Another important feature of PBL is in relation with the use of technology. In fact, Computer-assisted PBL denotes the use of computers in the application of a PBL activity. The literature has proved that a technology-integrated PBL environment has more advantages than the traditional PBL environment as it provides a real-world, constructivist and cooperative learning atmosphere (Bottino & Robotti, 2007). It is argued that when PBL adopts the requirements of technological instruction, it could provide students with better to interaction opportunities (David, 2008). For instance, many studies have conveyed the positive impact of technology use in the PBL environment on student achievement in science (Bottino & Robotti, 2007). Furthermore, Chu, Tse, and Chow (2011) claimed that effective instruction is closely related to technological instruction which promotes student-centered learning and greatly differs from traditional direct instruction. The value of technology in PBL is also highlighted by experienced educators who confirm that students learn best in a PBL context where they can construct their own knowledge and benefit from the use of technological tools (Blumenfeld et al., 1991). In the same sense, Blumenfeld et al., (1991) reported that technology can be valuable in supporting students and teachers in projects requiring higher thinking levels.

2.3.2 Project-Based Learning as a Formative Assessment Tool

Black and Wiliam (1998) described formative assessment as an assessment *for* learning rather than an assessment *of* learning, which is familiar in end-of-unit tests . Formative assessment can be defined as “any pedagogical strategy used to elicit student understanding at any point during instruction” (Nare & Buck, 2011, p.35). This implies that in formative assessment, the teacher assesses the ongoing learning process rather than just the product. Thus, formative rather than summative assessment is one of the features of PBL where students are evaluated while completing their projects; during their learning process (Taveau, 2005). This can be explained by two main reasons. First, this kind of evaluation helps

students recognize good approaches to learning. Second, it gives them recognition for in-depth and successful processes. In fact, the main aim of formative assessment in PBL is to certify learners' awareness of their strategic processes and to encourage their ownership of the learning process (Blumenfeld et al, 1991). Nare and Buck (2011) argue that in order to succeed with formative assessment, teachers must use students' products to make instructional decisions and afford feedback that facilitates learning. Formative assessment is perceived as a cyclical activity that takes place several times in PBL. Concerning the effectiveness of this type of assessment, it was reported that students in PBL classes performed better on assessments of content knowledge in comparison with traditional classes, (Boaler, 1997; Penuel & Means, 2000).

2.4 Creativity

For many years, the educational system has mainly relied on teachers lecturing from the front of the classroom, while students are sitting in linear rows and working individually on paper-based worksheets. However, Renzulli's (1978) work has brought the significance of integrating creativity and imagination within the daily classroom practices. His theory has also inspired educationalists to offer more opportunities for creative programs to stimulate students' creativity. Research on intelligence has dominated research on creativity for a long time. It was only in the 1950's that creativity was referred to as an ability by Guilford (1950). Moreover, Guilford (1956) identified the components of divergent thinking, that is, originality, flexibility, fluency and elaboration as the core principles of creativity. Alternatively, Sternberg (2007) refers to creativity as a habit. He reckons that people are creative mostly because of their attitude towards life rather than because of an inherited trait. So, like any habit, according to Sternberg (2007), creativity can either be encouraged or discouraged. Overall, Creativity is an intricate concept which is affected by a number of factors that can be categorized as personal (cognitive, motivational, attitudinal), environmental and social.

2.4.1 Enhancing Creativity: The Teacher's Role

Most educators might agree that all students are potentially creative. Cropley, (1997 in Majid, Tan & Soh 2003) claims that creativity exists in every person, at least as aptitudes.

Similarly, Downing (1997 in Majid, Tan & Soh 2003) argues that although creativeness varies from one person to another, a person who is totally uncreative does not exist. Therefore, teachers might admit that nurturing creativity is based on the idea that the traits of creativity can be enhanced to develop in a proper motivating learning environment (Majid, Tan & Soh 2003). The learners' creative abilities can be heightened by providing encouragement, training and opportunity. In this way, enhancing creativity can be during every day instructional time. Accordingly, Sternberg & Lubart (1995, p. 161) concluded from a study they conducted that "The pupils who had been taught to think creatively had indeed improved their creative skills with only a relatively small investment in instructional time." For this reason, nurturing students' creativity has been considered as an important responsibility of teachers (Tan, 2000). Teachers need to be aware of the factors that can influence creativity development. For instance, creativity can be fostered by encouraging students to learn independently, enhancing flexible thinking and promoting self-evaluation (Cropley & Urban, 2000 in Davis, Rimm & Siegle, 2011). Additionally, students could be more creative if they are exposed to a large variety of stimulation; namely, providing them with opportunities to acquire information, allowing them freedom to ask questions, disagree, experiment in a non-evaluative atmosphere and tolerating errors (Soh, 2001) can help teachers nurture their students' creative skills.

2.4.2 Creative writing

Writing is regarded as a recursive process that includes both cognitive and metacognitive skills (Larkin, 2009) and is essential for academic and career development (Graham & Perin, 2007; Hirsch, 1987). Therefore, it is of great importance to determine methods that can develop effective writing instruction. Indeed, teaching creative writing might be one of the ways to support the development of the writing skill with all its components. Nettle (2009 in Barbot et al., 2012) defines creative writing as the production of fictional accounts or written representations. However, other researchers such as Root and Steinberg (1999 in Barbot et al., 2012) give a broader definition of creative writing to include nonfiction. Moreover, (Sharples, 1996 in Barbot et al., 2012, p.210) defines it as "a form of writing that is unusually original while operating under appropriate constraints of structure and language". Adding to that, creative writing is perceived as an "open-ended design process" which builds upon creativity and can help develop children's thinking skills (Chen & Zhou, 2010). Such a

process can help learners to better understand the functions and value of writing as it can help them improve their reading skills (Shanahan, 2006). Furthermore, creative writing can teach students to approach life with more creativity as declared by Sternberg and Kaufman (2009 in Barbot et al 2012). Overall, many scholars insist that it is the educational environment that can improve or inhibit the development of students' imagination (Eckhoff & Urbach, 2008 in Barbot et al., 2012).

Thus, a few variables are identified to be the most important in affecting students' writing skills. Researchers differentiate between two types of variables: internal and external. For instance, the writer's internal variables include the writer's L2 proficiency (Cumming 1989, Whalen & Menard 1995, Saaki 2000, 2004 in Cohen & Macaro, 2007) and his/her degree of competence or capability where important differences are observed between skillful and unskillful writers (Raimes 1985; Cumming 1987; Whalen & Menard 1995 in Cohen & Macaro, 2007). Another internal factor that is supposed to influence a student's writing strategies is his/her L1/L2 literacy and educational experience (Cohen & Macaro, 2007). In fact, the writer's mental model that consists of a set of concepts and beliefs can influence his/her writing performance. In this case also, considerable differences were noted between more and less competent L2 writers. Namely, the competent writer's mental model appears to be more multidimensional which enables them to take risks in using complex sentences (Khaldieh 2000) and focusing on fluency and clarity (Kasper 1997). The less competent writers' mental model, however, seems to be rather mono-dimensional and they tend to perceive writing as a mere juxtaposition of sentences instead of the production of an entire discourse (Zamel 1983).

Some internal factors that can shape creative writing were also highlighted by Barbot et al. (2012) such as general knowledge and cognition, creative cognition, and motivation. Firstly, the general knowledge and cognition includes intelligence, specifically verbal intelligence (Berninger, Cartwright, Yates, Swanson, & Abbott, 1992; Coker, 2006); topic knowledge, cognitive flexibility and the working memory. Secondly, creative cognition refers to originality or the ability to produce distinctive ideas as argued by Ward, Smith, & Fink (1999). Lastly, motivational factors refer to intrinsic motivation that seems to be one of the main characteristics encompassed in creative writing as it reflects a personal aspiration to express one's knowledge or ideas on a subject through writing. As for the external variables that can affect creative writing, Cohen and Macaro (2007) claim that there are mainly two of

them: task-related factors and topic-related factors. The former entails that more and less cognitively demanding tasks can affect the writer's strategy use whereas the latter implies that the familiarity of the topic to the learner is an important variable that can influence his/her writing performance.

This chapter offered an insight into the theories of giftedness, PBL and creative writing which represent key concepts in the current study. It aimed at highlighting the usefulness of PBL as a teaching strategy that could motivate the gifted and non-gifted and consequently enhance their creative writing skills. The forthcoming chapter defines the tools and procedures to investigate the relatedness between these three concepts.

CHAPTER THREE

METHODOLOGY

The present study aims at investigating how a Project Based Learning approach can affect both academically gifted and non-gifted students' creative writing skills. In this way, the study aims at exploring how PBL can be a reliable differentiation technique to cater for students with extremely different cognitive and linguistic abilities. The findings and interpretations of the conducted study will serve to provide recommendations for educators in the field, particularly English language teachers, on how to motivate their academically gifted students and maximize their learning without overlooking the needs of those non-gifted or low achievers. This chapter lists the methods and procedures that were applied to conduct this research. In order to examine the reliability of PBL approach in differentiating instruction and improving gifted and non-gifted students' writing skills, a mixed method approach was used.

3.1 Research Design

To conduct this study, a mixed methods design was chosen. According to Creswell (2012), a combination of both qualitative and quantitative approaches, offers a deeper and better grasp of the research problem than by using each one alone. Creswell Tashakkori (2007, p.4) define the mixed methods approach as a "research in which the investigator collects and investigates data, integrates the findings, and draws inferences using both qualitative and quantitative approaches in a single study". Moreover, the integration of the quantitative and qualitative data gives way for triangulation which helps to validate the findings and improve the studies. Creswell (2012, p.536) further explains that the improvement in investigations results from merging the strengths of one type of research with the neutral aspect of the other. Actually, the use of quantitative data gives the study a more objective aspect and allows generalization of results (Creswell, 2012) while qualitative data is

considered as the most appropriate to explore a problem or an issue (Creswell, 2007) as is the case in this study that aims to further explore (the use of the PBL approach to improve gifted and non-gifted students' writing skills) a topic which the literature yields little information (Creswell, 2012).

The qualitative aspect of the current study consists mainly in the use of the case study design. There are many definitions for case study within literature. However, Yin's (1984) definition seems to be the closest to this study. Indeed Yin (1984, p.23) perceives a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context". In this respect, the research consists of an empirical study in which four participants took part to allow an in-depth examination of the process as well as the products of learning over time in a PBL environment. Moreover, the use of a case study can be justified by the comprehensive aspect of such a research method as it permits the use of multiple sources of information such as interviews, artifacts and observation (Yin, 2003). Additionally, Nunan (1992) states that the case study has a lot of potential as a research method and has become reputable in the field of second language acquisition.

Yet, in addition to the qualitative facet of the present study, quantitative data is also used for the sake of triangulation and validation of the findings. In fact, the quantitative approach is manifested through the use of descriptive statistics that are derived from the marks of students' writings as well as from the teachers' questionnaire. Table1 below provides a comprehensive representation of the methods of data collection used in this study which will be further explained later in this chapter. A presentation and interpretation of the findings will follow in chapter 4.

Research questions	Research instruments	Data analysis methods	Procedure
1.To what extent can Project Based Learning enhance gifted and non-gifted students' creative writing skills ?	Language Creativity Rating scale.	1.Analysis of students' writings using descriptive Statistics (quantitative)	1.The writings of the 4 students will be analyzed and coded according to the Language Creativity Rating Scale (1 st draft and 2 nd draft) 2. Descriptive statistics will be used to compare gifted and non-gifted students' writing scores.
2.What are the internal and external factors that shape gifted and non-gifted students' creative writing in a PBL experience?	Semi- structured interviews conducted with the 4 participants	-Transcription of the interviews -Interpretation of the recordings and of the students' answers (qualitative)	-At the end of the empirical study, the 4 participant students were interviewed to find out about the internal and external factors that might have helped or impeded their achievement. Their responses were recorded, transcribed and then interpreted.
3.What are the high school teachers' perceptions of their role in PBL and in nurturing students' creativity?	Questionnaire	-Interpreting the teachers' answers in Part A of the questionnaire. (qualitative) -Descriptive statistics will be used to analyze the closed-ended questions (quantitative)	-A survey was conducted in 4 MAG high schools (2 boys schools and 2 girls schools) to investigate teachers' perceptions.

Table 1: Research Design

3.2 Sampling

The participants in this study were both teachers and students. The students were the main subjects of the case study whereas the teachers' participation was by responding to the questionnaire.

3.2.1. Students

The researcher has opted for purposeful sampling that can best help in understanding the central phenomenon of this research (Creswell, 2012). Thus, the researcher started by identifying the academically gifted and non-gifted students who will participate in the empirical study. For that, no IQ test was used as there is no standardized IQ test to identify gifted students in the chosen school. However, a multidimensional approach was used to identify the participant students, which are seen as more reliable than IQ tests in recent studies as discussed in the previous chapter (Renzulli, 1978; Sternberg 1991; and Gagne', 1999; Piitro, 2007). The first means of identification was the students' achievement test scores in the English language. In the UAE educational system, students who score 95/100 or above are identified as academically gifted whereas those who score below 50/100 are considered as non-gifted or low achievers. Therefore, The use of the term 'gifted' here is justified in the literature because it is used to identify children who have higher mental abilities or also those who are very high academic achievers. Then, after identifying the gifted and non-gifted students according to their scores, the researcher met with each one of the students to collect more information about their literacy and educational experience, which allowed a profile development for each of the participant students. Furthermore, the researcher studied the selected students' portfolios that are considered as an assessment tool that "yield[s] more accurate information about how much a student has learned" as claimed by Sousa (2003, p.62).

The table below summarizes the collected data about the subjects of this study (Table 2). It shows that four Emirati students from grade 11 were identified and categorized as gifted and non-gifted. Three of them were from the Arts stream and one from the Science stream with ages ranging from 16 to 18. The rationale behind including students from both streams is to create a balance and also because most of the students in the science stream are considered to have high aptitudes. Adding to their achievement test scores, the data collected about the students helped the investigator to identify some common features between the two academically gifted students who both had attended private schools before joining the public schools and who are fond of reading. Similarly, some common features could be seen among the two academically non-gifted students whose educational experience is extensively in public schools and whose talents are artistic (music and drawing) rather than intellectual. The

table also conveys information about the four students' scores in the writing skill and project work as these are the most important areas that will be examined in this research.

Student code	Nationality	Age	Class	Schooling	English Score (100)	Writing Score (20)	Experience with project work	Project work score in Term 1	Hobby	Learning Difficulties
Gifted Students										
G S 1	Emirati	16	11 Science	-KG- G8 in a private school - G9 in a public school - G10-11 in a MAG secondary school	99	19.5	Since G7	30/30	Reading and watching American movies	
G S 2	Emirati	16	11 Arts	-KG1-G6 in a private school - G7-G in a public model school - G9 in a MAG cycle 2 school - G10-11 MAG secondary school	99	19.5	Since G7	30/30	Reading	
Non-Gifted Students										
NG S1	Emirati	16	11 Arts	In public schools	49	11	Since G7	17	Playing the piano	Demotivation
NG S2	Emirati	18	11 Arts	In public schools	46	8	Since G7	24	Fashion Design (running her own business)	Cannot memorize information

Table 2: Gifted and non-gifted students' profiles

Besides this, another means of identification used for validation and to avoid bias and subjectivity was a Language Talent Rating Score (Appendix A) developed by Sousa (2003). This was passed to the teacher of the four students to fill in and results were shared with the researcher.

3.2.2 Teachers

The selection of the second group of participants in this study, the teachers, was also a type of purposeful sampling. The selection of the teachers conforms to homogeneous sampling where the researcher "select[s] sites or people because they have a similar trait or characteristic" (Creswell, 2012, p.208). Indeed, the 29 teachers that responded to the survey about PBL were all high school teachers at Madares Al Ghad (MAG) schools where PBL is part of the curriculum. So, all the participant teachers were chosen because they had an experience with PBL and they could share their opinions about this teaching approach. Furthermore, the participant teachers were both males and females to avoid gender bias.

3.3 Instruments

3.3.1 Language Creativity Rating Scale

In order to be able to assess the students' artifacts, that is, their written report at the end of the project and in order to answer the first research question, the researcher has chosen the Language Creativity Rating Scale (Appendix B) that was already used in a similar study by Majid, Tan, and Soh (2003). It is a 5 point rating scale that was developed based on studies that were conducted by Torrance (1986, 1990); Sternberg (1995, 1998) and Soh (1997). This instrument was chosen to assure the facility and reliability of mark allocation and was slightly modified by omitting the details about story writing in order to use it in a more generic way. Indeed, the first research question investigates the extent to which project work can enhance gifted and non-gifted students' creative writing skills. For this reason, the Language Creativity Rating Scale is a good choice as it includes among its seven marking criteria the four core principles of creativity developed by Guilford (1956) which include originality, fluency, flexibility and elaboration. The remaining three components of the rating scale are related to language proficiency. They include richness of vocabulary, complexity of sentences and accuracy in grammar. Further explanation about what each component entails is available in the appendices (Appendix B). The total score of the composition is 35 marks. This instrument was used twice during project work to mark the first and final drafts of the participant students and the results of the gifted and non-gifted students were entered into the Language Creativity Score sheet (Appendix C) adapted from Majid, Tan, and Soh (2003). Descriptive statistics were used to compare students' results.

3.3.2 Semi-Structured Interviews

Semi-structured interviews were conducted with the four participants at the end of the project to find out about the internal and external factors that shaped their writing in a PBL context. The researcher opted for this method of data collection because it is one of the popular methods to collect qualitative data. Actually, Fontana and Frey (2000 in Creswell, 2012, p.46) describe semi-structured interviews as "one of the most powerful ways in which we try to understand our fellow human beings.". Thus, the researcher prepared a set of six open-ended questions that were posed to each student individually (Appendix D). The questions were carefully written based on literature review (Creswell, 2003). However, in addition these predetermined questions, the semi-structured interview protocol gave room for

modifications depending on what is applicable. For example, this type of interview allowed variation in the ordering and phrasing of the questions and it also permitted further probing with specific interviewees, particularly the non-gifted students. Each interview lasted round twenty minutes and was audiotaped. Then, all interviews were transcribed and coded, which helped to identify the main recurrent themes that will be discussed in detail in chapter 4. The interviews also complemented the data collected from the students' artifacts and allowed the participant students to have a voice and provided "reliable, comparable qualitative data" (Cohen & Crabtree, 2006, p.1)

3.3.3 Questionnaire

Given the important role that teachers play in the field of education, and after providing the participant students with the opportunity to assess their experience with project work in this empirical study, it was highly important to investigate what the providers thought about project work. Therefore, a questionnaire was administered to collect data about the teachers' perspectives regarding this approach as well as their understanding of the different concepts studied in this research (PBL, differentiation and creativity). Questionnaires are also popular as they help to explore people's beliefs and attitudes or also to describe national trends (Creswell, 2012). However, due to the paucity of data and because there is no previous research at the local level which has tackled the topic of the current study, no questionnaire instrument was readily available to address the research question about teachers' opinions and attitudes that are relevant to the current study. Therefore, it was necessary to design a questionnaire to suit this study. As recommended by Robson (2002), the questions of the questionnaire were carefully designed in order to help in answering the research question. Indeed, the questionnaire included both closed-ended and open-ended questions (Appendix E). In part A, the 5 open-ended questions were meant to collect information about the teachers' background knowledge regarding PBL as a teaching approach and their understanding of how PBL relates to such concepts as creativity, differentiation and formative assessment, whereas the 15 closed-ended questions in Part B were categorized under three major headings that are directly related to the research question: a) Project Based Learning and Creativity, b) The role of the Teacher, and c) Professional Development. One of the advantages of this type of questionnaires is that the predetermined closed-ended-questions can reveal important quantitative data "to support the theories and concepts in the

literature” as elucidated by Creswell (2012, p.220). At the same time, the open-ended questions allow the investigator to explore the reasons behind the closed-ended answers and to decipher the comments and explanations that the participants might have beyond those responses (Creswell, 2012).

The questionnaire was evaluated by an expert in the field of research and then, a pilot test was carried out with some participants from the target group. Their feedback was taken into consideration and minor changes were made to improve the quality of the questionnaire. Once the final tool was ready, the questionnaire was administered at the beginning of trimester three in four MAG high schools, which represent almost one third of all MAG secondary schools in the country. These included 2 girls’ schools and 2 boys’ schools from the Emirates of Sharjah and Dubai. Out of 35 teachers, 29 (15 females and 14 males) ,that is, about 83% of the targeted subjects with an age range 32 to 60 years old responded to the questionnaire while the others apologized and refused to participate. The years of experience among all participants ranged from 6 to 35. Hence, the completed questionnaires provided a lot of useful information. However, one of the challenges of using questionnaires is the analysis of the data collected from the open-ended questions (Creswell, 2012). So, to analyze this type of data, researchers search for overlapping themes, they count the number of themes or the number of times a theme was mentioned as argued by Creswell (2012). In this study, the questionnaires were analyzed both qualitatively and quantitatively through the use of descriptive statistics. As suggested by Creswell (2012), overlapping themes were identified, number of themes was counted and number of times a theme was mentioned. Detailed findings from this questionnaire are presented later in chapter 4.

3.4 Role of The Researcher

The researcher played the role of a participant observer as she was guiding the students throughout their project work after seeking permission from the class teacher. This role is defined by Creswell (2012, p.214) as an “observational role adopted by researchers when they take part in the activities in the setting they observe.” So, the observer engages in the activities of the study to learn about a situation, which offers him/her the opportunity to see experiences from the participants’ views. Thus, the purpose of being a participant observer in this study was to cultivate descriptive information to supplement the other data resources. Besides, observational data were used as probes during the interviews. One typical aspect of being an observer is note taking. However, as stated by Creswell (2012), it is hard to take notes while taking part in the study. For this reason, no observation protocol was used

but the researcher tended to keep some general as well as specific field notes about the participant students at the end of each session of their project work including on-task/off-task behaviours, reading, writing, students' research skills, their information technology (IT) skills and researchers' impressions about the students' processes in constructing their learning artifacts.

3.5 Procedures

3.5.1 Context

The purposeful sampling that was adapted in this research for the participants is also applicable to the choice of the study site (Creswell, 2012). Indeed, the researcher intentionally chose to conduct this study in a MAG secondary school for girls in the Emirate of Sharjah because it is thought to be "information rich" (Patton, 1990 in Creswell, 2012, p.206). Actually, PBL constitutes a major part of the curriculum in the English department in MAG schools that adopt a standard-based curriculum and where differentiation and student-centered instruction are primordial. The setting was an eleventh grade English class where project work was conducted at the end of unit four during the second trimester as a culminating task to enhance students' language skills through PBL. The English syllabus is theme-based and the topic of the unit of work around which the project work was built was named the "Out of Control" unit , which is about addiction . Another aspect of MAG schools is that they had taken the initiative to integrate computers into their academic curriculum. Therefore, the English department has access to two computer laboratories where internet connection is available. Adding to that, all English teachers in the school have been using laptops for nearly three years, while the targeted students who joined the school in grade ten were in their second year of using computer-based projects.

3.5.2 Description of The Study

The main aim of this empirical study is to investigate some facets of PBL and how it can help improve gifted and non-gifted students' English writing skills. Therefore, purposeful sampling of the site and the participants was adapted as clarified above. However, for the specific purposes of this study some changes were necessary in order to be able to answer the research questions that are particular to the current study. As a matter of fact, project work normally incorporates the use of cooperative and collaborative learning (Grant, 2005) and

this is the custom in MAG schools as well. Nonetheless, the researcher in this study after seeking the teacher's permission chose to let the identified students (2 gifted and 2 non-gifted) work individually on their projects. The investigator was concerned that group-work might obscure the individual differences of the learners especially that the study encompasses a comparison between the academically gifted and non-gifted students in terms of achievement in their final products. The researcher preferred to engage the students in individual tasks because in a cooperative learning environment, students with higher abilities (gifted) might dominate the less able (non-gifted). Also, if a group of students produce one single piece of writing, it will be difficult to assess their individual creative writing skills.

The design of project work in this study involved most of Grant's (2002) elements of project-based learning, particularly the steps included in Web-Quests (Appendix F). Indeed the major stages of project work as applied to this study could be summarized as follows:

Step 1:

The researcher met with the targeted students, explained the task and provided them with a list of suggested Web-Quests related to the topic of addiction (Appendix G). Students were given the freedom to choose their topics either from the list or any other topic that is of interest to them. Consequently, the gifted students preferred to choose a topic that is particularly relevant to them (Fast Food Addiction/ Body Building Addiction) whereas the non-gifted students expressed that they needed guidance so they chose two topics from the list (Web addiction and BlackBerry addiction) because the hyperlinks provided them with initial information on which they could build their projects.

Step2:

The researcher then provided the students with the outline of a persuasive essay to organize their ideas while collecting data from the internet about their chosen topics (Appendix H).

Step 3:

Students worked individually in the computer laboratory to write their first draft while the researcher as a participant observer monitored the students and provided feedback. The gifted Students could finish their work by the end of the session whereas the non-gifted faced a huge challenge in writing their first draft. A lot of help and guidance was provided by the researcher for the non-gifted whereas the gifted students were much more independent.

Step 4:

A self-assessment rubric (Appendix I) was handed to the students to reflect on their first work as per the criteria of the rubric. Then a discussion was conducted with each student where feedback and comments from the participant observer were provided and students wrote their second draft. The researcher retained copies of the first draft to be marked according to the creative writing rating scale (Appendix B).

Step 5:

The researcher collected all the students' second drafts to evaluate them using the same rubric and descriptive statistics were retrieved from the students' products.

The length of the study went over the period of 4 weeks and each session lasted no less than one hour. However, it is worth noting that it took much longer with the non-gifted students due to their absenteeism and slow performance.

3.6 Ethical Considerations

In order to ensure the reliability of data collection and the findings, the researcher undertook a number of measures. First, permission was sought from the school principal to conduct the study in February, 2014. Then after identifying the participant students, the researcher met with them and clarified the purpose of the study. Informed consent forms were obtained from all students (Appendix J); confidentiality was assured and anonymity was maintained by using pseudonyms. Their parents were also contacted to inform them about the scope of the study and to obtain their consent about their kids' participation. As for the teachers who answered the questionnaire, a cover page was included explaining the purpose of the study and teachers were given the choice to accept or refuse to participate. To avoid any bias from the side of the researcher who was a participant observer, member checking was used with the interviewed students to guarantee "credibility of the findings and interpretations" (Creswell, 2007, p.208). Moreover, the validity of this study was secured through the use of a mixed methods approach that allows multiple sources of data collection (students' products, observation, interviews and questionnaires), which helped to triangulate the data and validate the findings.

Hence, both qualitative and quantitative data that are relevant to the research enquiries have been collected. The analysis and codification of the collected data will follow in chapter 4 where the findings are presented.

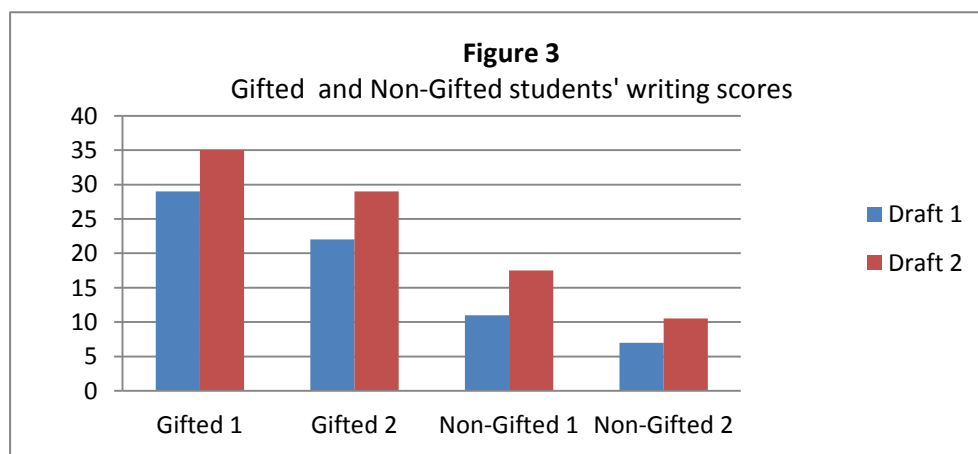
CHAPTER FOUR

FINDINGS

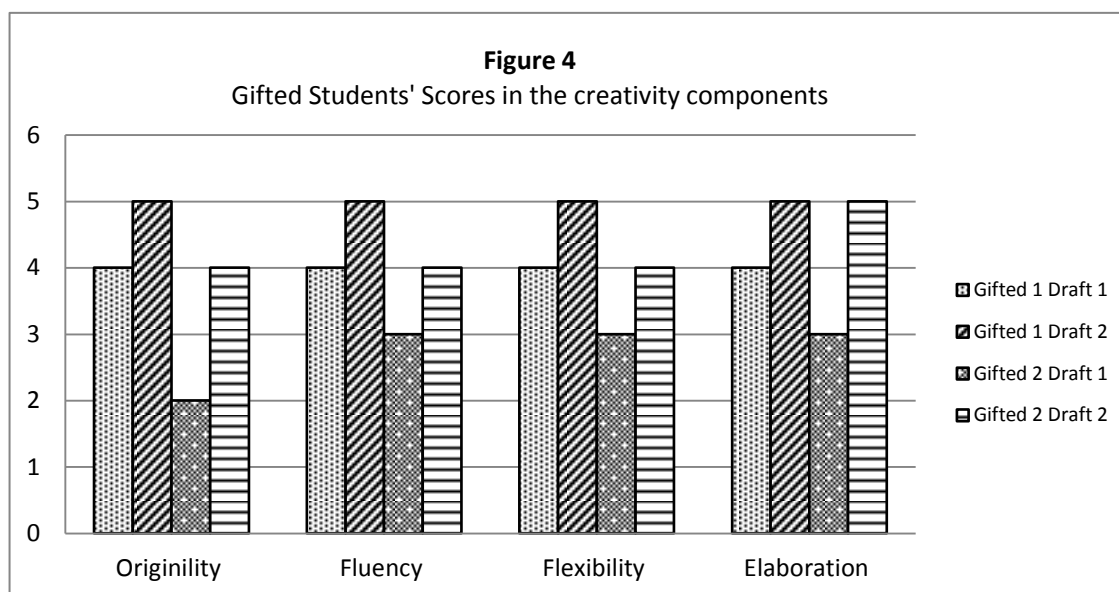
The purpose of this research is to investigate how PBL can enhance gifted and non-gifted student' creative writing skills. Subsequently, this empirical study has explored the validity of PBL as a differentiation technique and a learner-centered approach. The inquiries raised in this study have been investigated through a variety of tools that permitted collation of both qualitative and quantitative data. Hence, in an attempt to find valid responses to the research questions, the collated data was prudently analyzed and the revealed findings are coherently described in this chapter. Further elaboration on these findings will follow in the discussion chapter.

4.1 Results from the Language Creativity Rating Scale (Instrument 3.3.1)

In response to the first research question, quantitative data was derived from the students' writing samples. All students' writings, first and second drafts, were marked according to the criteria of the Language Creativity Rating Scale (Appendix B). Thereafter, the total scores for both drafts were entered in the Language Creativity Score Sheet (Appendix C) and then compared. The findings as represented in figure 3 below, indicate that all students scored higher in the second draft. Even though the gifted students scored much higher results, the non-gifted students' scores in the second draft did also improve. Additionally, it is significant that there was a difference in the rate of improvement among all four students. Therefore, among the two gifted students, Gifted Student1 (GS1) scored higher than Gifted Student 2 (GS2) and Non-Gifted Student 1 (NGS1) had better results than Non-Gifted Student 2 (NGS2)



In order to measure the difference between gifted and non-gifted students' creative writing skills, the creativity components and the language proficiency components were analyzed separately. Figure 4 reveals that the gifted students scored higher in all the creativity components in their second draft. Their marks improved in originality, fluency, flexibility and elaboration. Nonetheless, a big difference can be seen between GS1(Appendix K) and GS2 (Appendix L) in the originality component with the former scoring higher than the latter in all the other components as well. For instance, the title that GS1 chose for her persuasive essay was creative and attractive "Sweet Gone Sore" to raise awareness about the dangers of junk food. She also used metaphors "It's a silent killer that works its way from the inside out" or " leading yourself into a cocoon of isolation"



However, the analysis of the same components in the non-gifted students' written products as represented in figure 5, revealed that there was no originality neither in the first nor in the second draft for both students. Additionally, no progress could be seen in flexibility for NGS2 (Appendix N) while a slight improvement could be noted in this component in NGS1 results (Appendix M). However, both non-gifted students have shown advancement in terms of fluency and elaboration in their writings. Moreover, a close look at figures 4 and 5 proves that the gifted students scored much higher than the non-gifted in all creativity components.

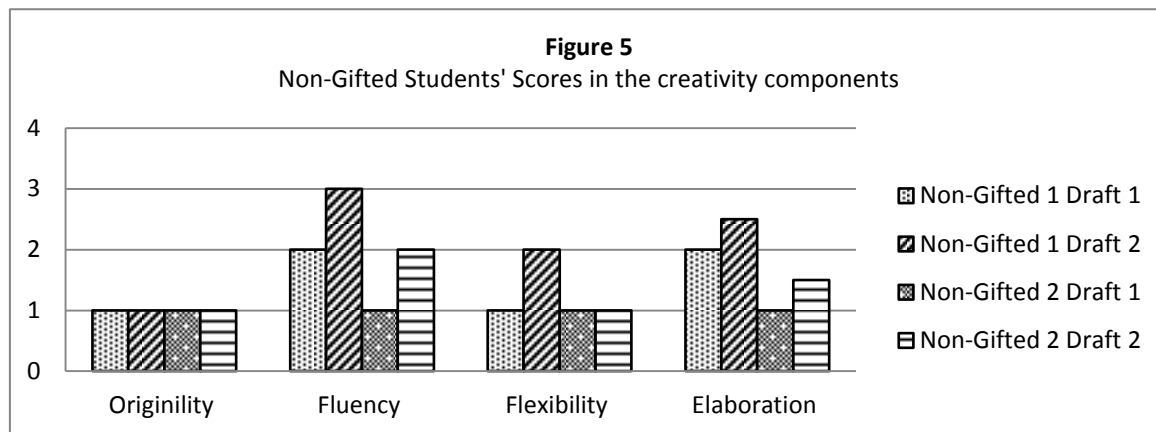


Figure 6 analyses the gifted students' scores in the language proficiency components. Therefore, it can be clearly noticed that there was variation in their improvement. Even though they both progressed in the complexity of the sentences, there was a difference in their development in accuracy and richness of vocabulary. Therefore, GS1 scored better in the richness of vocabulary by using words such as: 'abundantly', 'atrociously etc (Appendix K) whereas no improvement could be seen in accuracy since she already had a full mark in the first draft. GS2, however, progressed in accuracy but did not show any progress in richness of vocabulary (Appendix L)

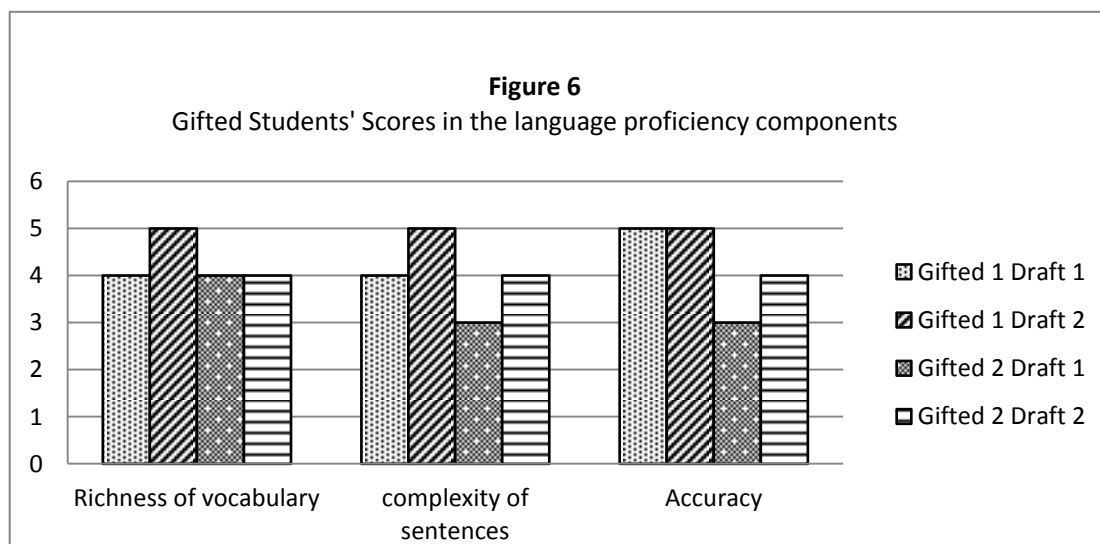
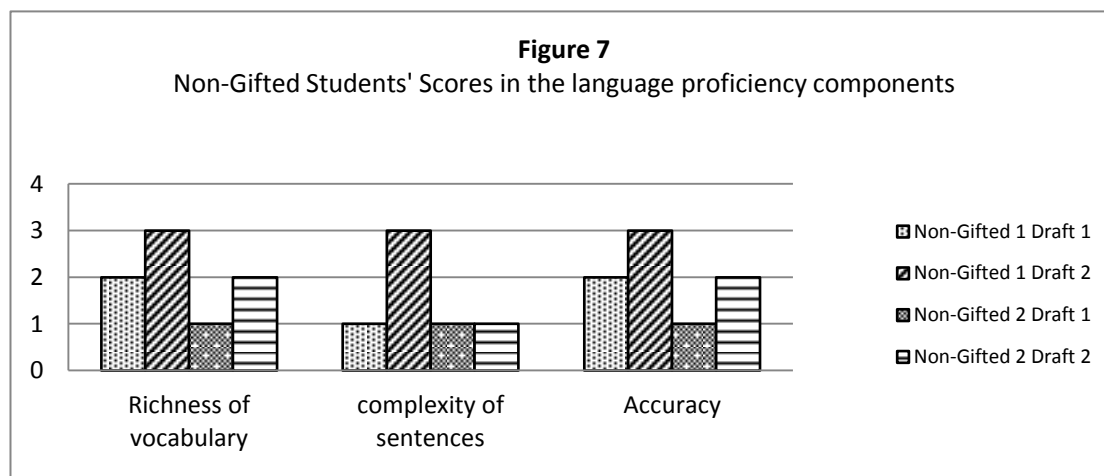


Figure 7 illustrates that both of the non-gifted students' scores improved in the language proficiency components. Indeed, they both scored higher in richness of vocabulary and accuracy but they differed in the complexity of sentences where NGS1 made a great

improvement (Appendix M) whereas NGS2 remained at the same low level (Appendix N). Both of drafts 1 and 2 for the 2NG students are included in the appendices for comparison.



4.2. Results from the semi-structured interviews (instrument 3.3.2) and field notes

As discussed earlier in Chapter 3, semi-structured interviews were used with the 4 subjects that took part in this empirical research to be able to answer the second research question. It investigates the internal and external factors that might impact gifted and non-gifted students' creative writing skills in a PBL environment . At the end of their project work, each student was separately interviewed to answer six pre-determined questions. The interviews were qualitatively analyzed and the data was codified into themes which included the internal factors (L2 proficiency, motivation, task commitment) and external factors (use of technology, feedback and formality of the topic) that affected their writing. Direct quotes were included to assure that the interviewees' voices are heard.

4.2.1 Internal Factors

4.2.1.1 L2 Proficiency

The results of the interviews revealed that all four participants, the gifted as well as the non-gifted, were conscious that their proficiency in the English language could facilitate or hamper the achievement of the task which comprised writing a four to five paragraph persuasive essay as the final product for their project work. GS1 who thought that her level of English was an advantage stated “ *actually it helped me achieve faster. It made my job very*

easy, because you know, with someone who is good at English, it would be very helpful and productive. For someone with poor English, it would take longer time.” Similarly, GS2 was positive that her L2 proficiency was advantageous as she declared “ *it helped me because if I didn’t know English this much, I will not understand anything when I read and I cannot write.*” Conversely, both of the non-gifted students’ responses to the first question in the interview revealed that they are aware of their weaknesses. Therefore, with her limited English NGS1 expressed “ *it was a problem but I had benefit* ” while NGS2 said “ *it was difficult because I don’t know English.*” The observers’ field notes also confirm these findings because it was noticed that during the process of their project work the non-gifted students struggled with the task as they had difficulties in reading and writing.

4.2.1.2 Motivation and Task Commitment

Motivation was another recurrent theme in the students’ interviews. When asked about what they enjoyed most in their experience with project work, all the students referred to the possibility of choosing their own topic as one of the reasons that made them enjoy what they were doing. However, choice was of greater importance for the gifted students. GS1 for instance happily stated, “*I had the option to choose whatever I want and finally writing about it was awesome*”. As for GS2, the possibility to choose her own topic raised her interest in the project. In her own words “*this is something I have been thinking about. I had the chance to search about it and if it’s interesting to me, I will do better in it*”. The non -gifted students were also positive about being able to choose their topics. To set an example, NGS1 answered, “*Yes, I was happy to choose my topic*”. What was more motivating for them was the use of the internet and the teacher’s guidance. Individual work was rather a good motive for all four students but for different reasons. Indeed, when asked about how she felt about working alone, GS1 responded “*I found working alone more productive than working in a group. I liked it better*”. The two non-gifted students also liked working individually under the observer’s guidance because in a group they might just be there without understanding anything as they reported.

The results of the students’ interviews as well as the field notes of the researcher revealed important data about the commitment of each student. During their project work, the subjects could be observed and the participant observer could clearly see that the gifted students were always on task whereas the non-gifted students were sometimes off task. Moreover, the project work took longer time with the non-gifted students because each one of

them was absent for one session and the observer had to plan extra sessions for them to be able to finish their work. The gifted students, however, were so determined to finish their work on time and to overcome the challenges. GS2 for example, stated, *“Finding information was difficult. I wanted to stop but I decided to finish it because I started and I won’t leave it”*.

4.2.2 External Factors

During this case study, some of the external factors that shape creative writing were also present in a PBL experience. As identified in the students’ interviews, these were: the use of technology, the observer’s feedback and the familiarity of the topic.

4.2.2.1 The Use of Technology

The interviews with all four students revealed that they were all positive about the use of technology. They unanimously confirmed that use of technology was of a great help to them.

GS1 response to the probe about technology was *“ It definitely helped a lot because I used the internet for information, writing strategies, persuasive expressions and even writing on word processor was good because of the auto correction of some grammar and spelling mistakes”*.GS2 was motivated by the use of technology as a source of information as she said *“ I collected things I did not know before and they are helpful in my life. I can tell people about them.”* Even The non-gifted students who had limited IT skills were motivated by the use of technology because it was their main source of information that provided them with new ideas and helped them with vocabulary. Actually, it was one of the interesting comments in the observer’s field notes that NGS2 did not even have an e-mail at the beginning of the project and the researcher had to create her one in order to be able to communicate with her. She also had very poor research skills. However, by the end of the project when asked about her opinion about the use of technology, her answer was *“ I learnt a lot. I wrote using the computer and it helps. It makes me see my mistakes.”*

4.2.2.2 Feedback

The usefulness of the observer’s guidance and feedback was a recurrent theme in the students’ interviews. Particularly, the non-gifted students frequently reiterated that the feedback and the help they received from the observer motivated them and helped them to successfully accomplish their task. NGS1 for example commented as follows when she was

asked whether PBL helped her improve her writing skills “ *Yeah, when you tell me about my mistakes while writing*”. NGS2 also stated “*things I could not understand but I could understand them this time because your explanation.*” As for the gifted students, it seems that they enjoyed discussing their mistakes with the teacher. Hence, GS2 remarked, “ *when you corrected for me we were talking about it. I knew where my weak points were and what should I do to make them better*”. Additionally, the observer noticed that during the self-assessment stage all the students enjoyed the use of the self-assessment rubric. They could evaluate their own writings, which they conveyed in the interviews as well because they realized their own mistakes.

4.2.2.3 Familiarity of the topic

The third external factor that seemed to have impacted the students’ creative writing skills in this PBL experience was the familiarity of the topics chosen and their relatedness to their real world. They each respectively explained the choice of their topics as follows:

- GS1 who chose junk food addiction explained “ *it was something we see commonly in our community*”.
- GS2 chose Body building addiction and justified her choice by saying “ *I chose it I have my brother and all he wants to do is body building, so I wanted to warn him that these things are dangerous*”.
- NGS1 opted for web addiction and the reason she gave was “ *It’s a real problem in the word.*”
- NGS2 chose Blackberry addiction and her justification was “ *BB addiction, it’s very important for society. I wanted to see the advantages and disadvantages.*”

4.3 Results from the questionnaire (Instrument 3.3.3)

The teachers’ questionnaire that included two parts, part A composed of five open-ended questions and part B composed of fifteen closed-ended questions, was analyzed qualitatively and quantitatively. As for the qualitative data analysis, the answers to the open-ended questions were coded, interpreted and then classified into 4 categories: Correct response,

Unclear response, Irrelevant response or Not answered. The Likert-scale results, however, were quantitatively analyzed using descriptive statistics (percentages).

4.3.1 Results from the open-ended questions

The teachers' responses to the open-ended questions reflected that the majority had a good grasp of what is meant by PBL and what makes creativity. Indeed, most teachers could provide a good definition about PBL. For example, one of them wrote: *"PBL is a way of teaching in which students acquire Knowledge and skills by working for an extended period of time to study and respond to a big question, problem or challenge."* Furthermore, most of the teachers agreed and showed a lot of awareness that creativity is related to concepts such as *"generating new ideas"*, *"imagination"*, *"innovation"* and *"originality"* as these were the most frequent terms they used in their responses. The majority also had a good understanding of PBL as a differentiation technique. One of the responses about question 3 was *"In my opinion, PBL is equivalent to differentiation. Teacher can differentiate according to each individual students' background knowledge, degrees of intelligence, learning styles, interests, goals, motivation"*. The teachers' responses to question 4, however, revealed that they had limited knowledge about PBL as a formative assessment tool as most of the answers were either unclear or completely irrelevant. Table 3 below summarizes the results collected from the teachers' responses to the four first open-ended questions.

Question	No of respondents	Correct response	Unclear response	Irrelevant Response	Not answered
1. What is your understanding of Project Based Learning (PBL)?	29	28			1
2.What is your understanding of creativity?	29	27	1	1	
3. What do you think of PBL as a differentiation technique?	29	25	1	2	1
4.To what extent do you think that PBL is a useful formative assessment tool?	29	5	16	6	2

Table 3: Teachers' Background Information about PBL

Question 5, however, was meant to give the teachers a chance to express their concerns and the challenges they encounter in the implementation of PBL. The teachers raise a few issues related to the implementation of PBL in their classrooms such as resources, problems with technology, demotivated students and time. However, time management was the most

reiterated challenge in their responses. Table 4 below is a summary of the concerns and challenges that were collected from the teachers' responses.

Types of Challenges	Frequency
1. Absence of some students when they work in teams.	2
2. Students who rely on their peers in the same group	2
3. Lack of facilities resources	3
4. Time	12
5. Procedures of implementation	3
6. Number of students	1
7. Lack of motivation	3
8. Problems with technology (internet access)	2
9. Plagiarism	1
10. Assessment of students' learning	1
11. Designing project questions	1
Total	31

Table 4: Challenges and Concerns about the implementation of PBL

4.3.2 Results from the closed-ended questions

The quantitative data collected from teachers' responses in the Likert scale supports what was reported about the qualitative results. Actually, as shown in table 5 below, an average of 63.1% of the teachers agreed and 30.6% of them highly agreed about all the statements related to this section. The highest rate fell in the statement A2 (71.4%) which proves that the teachers are aware of PBL as an approach that can improve students' creativity. Moreover, the findings about this section confirmed the results of the qualitative data where the teachers found it difficult to see the connection between PBL and formative assessment. Indeed, 17.2% of the teachers disagreed about statement A5.

Criteria	Highly disagree	Disagree	Agree	Highly agree
A. Project Based Learning and Creativity				
1-PBL gives the students a chance to choose their areas of interest which heightens their motivation and opens the horizons for their creativity.		3.4	62.1	34.5
2- PBL exposes students to challenging tasks that can improve their cognitive and creative abilities.		3.6	71.4	25.0
3 .Learning by doing refers to a student creating his own understandings through real-life activities.			62.1	37.9
4- PBL allows students more autonomy which is one of the traits of creativity.		6.9	69.0	24.1
5-PBL as a formative assessment tool allows students to reflect on their own learning.		17.2	55.2	27.6
6- Project work is one of the best teaching strategies to enhances students' creativity		6.9	58.6	34.5
Average		7.6	63.1	30.6

Table 5: Results from Project Based Learning and Creativity Section

Regarding teacher's role within a PBL context, the results as represented in table 6 below revealed that the teachers are conscious about the teacher's role as a facilitator that can allow students to be more creative; 65.5% of them agreed and 34.5% highly agreed about statement B1. However, some teachers (17.2%) disagreed about statement B5, which claims that creativity, can be taught. Their responses to statements B3 and B6 also confirm the findings of qualitative data derived from the questionnaires. In fact, 14.3% of them cannot see the relation between PBL and formative assessment and 41.4% see time management as a problem in PBL.

Criteria	Highly disagree	Disagree	Agree	Highly agree
B. Role of The Teacher				
1. In a PBL environment, the teacher acts as a facilitator who encourages students' independence and allows them to be more creative			65.5	34.5
2. Teachers should be conscious of what is creativity and how to improve their students' creative skills.			41.4	58.6
3- As a formative assessment tool, PBL gives way for the teacher's constructive feedback which promotes students' creativity.		14.3	57.1	28.6
4. The characteristics of PBL help teachers to nurture students' creativity and high thinking skills.		6.9	55.2	37.9
5. Creativity is not only innate but it can also be taught by a competent teacher.		17.2	65.5	17.2
6- Time management is easy to handle in a PBL experience	6.9	41.4	34.5	17.2
Average	6.8	20.0	53.2	32.3

Table 6: Results from Role of The Teacher Section

Table 7 below presents the results of the last part of section B of the questionnaire that was devoted to professional development. The majority of the teachers showed keen interest in being trained on how to implement PBL as the highest rate was for highly agree (58.6%) .The teachers were also positive about being trained on how to nurture students' creativity (41.4% agree and 51.7% highly agree).

Criteria	Highly disagree	Disagree	Agree	Highly agree
C. Professional Development				
1-Teachers need to be trained on how to implement Project Based Learning.		6.9	34.5	58.6
2. Teachers should be aware of their role in nurturing students' creative skills.			55.2	44.8
3. Teachers should be trained on how to improve their students' creative skills.		6.9	41.4	51.7
Average		6.9	43.7	51.7

Table 7: Results from Professional Development Section

Hence, the results collected from each research instrument revealed a great deal of valuable data that aimed to provide adequate answers to each of the three research questions. Each category of the findings presented above is further discussed in the coming chapter to unveil the implications behind these findings.

CHAPTER FIVE

DISCUSSION

The main aim of this study was to investigate how the use of PBL could be a relevant differentiation technique for both gifted and non-gifted students to enhance their creative writing skills. For that the researcher has designed three research questions each of which was meant to reveal valid responses and useful information about the research topic. After analyzing the data collected from the three distinct instruments that were used in this study, the results are respectively discussed in this chapter according to the research questions.

Research Question1: To what extent can PBL enhance gifted and non-gifted students' creative writing skills?

5.1 PBL and Differentiation

As analyzed in chapter 3, the findings from the Language Creativity Rating Scale revealed that all four participants in the empirical study showed improvement in their writing skills. Indeed, after going through all the different phases of their project work, the two gifted as well as the two non-gifted students scored higher in their second drafts which represent the final product of their projects (Figure 3). Such results confirm that PBL can enhance students' creative writing skills and are similar to the findings of a previous study conducted by Majid, Tan and Soh (2003) in Singapore where students scored higher in their creative writing due to the use of technology. Unlike Powers' research (2008) that restricted the independent study as a viable differentiation technique for the gifted, the present study proved that even the non-gifted could learn better in a PBL environment. Such a finding confirms the claims of all previous studies about the effectiveness of PBL as an instructional approach (Noe and Neo, 2009; Wolk, 1994; & Orevi and Danon, 1999) and reveals that it can be a valid differentiation technique that meets the needs of the gifted and the non-gifted. With reference to Tomlinson and Jarvis's (2009) six principles of differentiation discussed in chapter 2, PBL seems to incorporate most of these principles. For instance, in a PBL context, the students are challenged since the projects are usually built on complex tasks. Yet, when they were given the possibility to choose their own topics, the participants in the present study were motivated and engaged in meaningful tasks that interest them. Gradually, with

their different learning styles, the gifted and non-gifted could find what appeals to them in a motivating and less evaluative atmosphere.

5.2 PBL and Creativity

Even though the analysis of the students' written products revealed that both the gifted and non-gifted students' writings improved, it should be noted that this improvement was at different degrees. The two gifted students scored much higher in the creativity components (originality, fluency, flexibility and elaboration) than their non-gifted peers (Figure 4). This finding aligns with the theories of giftedness such as Renzulli's (1978) Three-Ring Theory that includes creativity as one of the main components of giftedness. Moreover, Gagne' (1991) included creative ability as a major component in his definition of giftedness. Similar findings were reiterated in another recent comparative study conducted by Cantrell (2012) that compared the PBL approach to traditional instruction. Cantrell reported that there was some evidence that PBL may promote higher levels of creative thinking for gifted students in particular. Nonetheless, the non-gifted students did also show a slight improvement in two components of creativity (Fluency, Elaboration) which can be explained by the use of the internet that helped them generate more ideas (Figure 5). This finding also confirms the theories about nurturing creativity that was highlighted by many researchers. Indeed, Cropley (1997) and Downing (1997) believe that creativity exists in every person. It is through the use of a challenging and motivating curriculum that creativity can be enhanced (Sternberg & Lubart, 1995; Cropley & Urban, 2000 in Davis, Rimm & Siegle, 2011). Even though Lupu's (2013) study about the effect of academic giftedness on creativity revealed that giftedness does not have an effect on students' creative attitudes, in the present study both the gifted and the non-gifted students' creative writing could be enhanced in a PBL experience. With their higher cognitive and linguistic abilities, the gifted students could be more creative.

5.3 PBL and Language Proficiency

The results collected from the students' writings revealed that most of the students showed some progress in the language proficiency components. Yet, the non-gifted students scored better particularly in vocabulary richness and grammar accuracy. Such findings differ from the findings in Majid, Tan and Soh's (2003) research, where no improvement could be seen in the language proficiency components. In a PBL experience, this could be explained by the use of the computer that helped them correct some of their spelling and grammar mistakes

and also by the guidance that was provided by the observer during the writing process as it was reported by the students themselves in the interviews. Besides that, it was clear from the analysis of students' writings that gifted students already scored high marks in the language proficiency components since the beginning in their first drafts. This finding has got its roots in the literature since high language and thinking skills are considered to be some of the main traits of giftedness (Pfeiffer, 2009; Davis, Rimm & Siegle, 2011). However, The main component among the language proficiency components in which gifted students scored higher was sentence complexity. This is also ascertained in the literature because according to Bloom's Taxonomy (1956), the high achievers can cope better with complexity as discussed in chapter 2. Moreover, Manning et al. (2010) contend that high-ability learners can grasp complex ideas with more insightfulness and at a faster pace than their peers.

Hence, this study has brought together two claims about PBL. In fact, many studies have described complex projects as one of the most adequate instructional strategies to respond to gifted students' needs such as Powers (2008) and Davis, Rimm and Siegel (2011). However, other scholars have declared that there is also some evidence that PBL can be mainly effective with lower achieving students (Mergendoller, Maxwell, & Bellisimo, 2007; Lynch, Kuipers, Pyke, & Szesze, 2005). The novelty of the current study consists in discovering that PBL could benefit both the gifted and non-gifted students to improve their creative writing. In this way, PBL can be perceived as a valid differentiation technique for the gifted and the non-gifted.

Research Question 2: What are the internal and external factors that shape gifted and non-gifted students' creative writing in a PBL experience?

Another important finding of this study is that the PBL environment has created and enhanced some internal and external factors that generally shape students' creative writing. Such a finding was applicable for the gifted as well as the non-gifted learners who took part in this empirical research.

5.4 Internal Factors

The internal factors that affect the students' writings as identified by Cohen and Macaro (2007) are their L2 proficiency and their L1/L2 literacy. Barbot et al. (2012) also identified general knowledge and cognition, creative cognition, and motivation as other internal factors

that can shape creative writing. However, in the current study two main internal factors could be identified as having affected the students' creative writing. These were the L2 proficiency and motivation or task commitment that were enhanced by the PBL approach. As discussed above, the students' evaluated writings revealed that the L2 proficiency represents a major internal component that can affect their creative writing skills as suggested by many scholars (Cohen and Macaro, 2007; Cumming, 1989; Whalen & Menard 1995; Saaki 2000, 2004). Moreover, the qualitative data collated from the students' interviews have proved that all the students were aware of their own abilities in the English language and how it affected their work in this project. The gifted students assured that their L2 proficiency has made their work in this project much easier. This has allowed them to focus more on the originality of ideas (figure 4) and complexity of sentences (figure 6) rather on the accuracy of the language as was the case with the non-gifted learners. This could be a proof of the gifted students' verbal intelligence (Berninger et al., 1992; Coker, 2006) and creative cognition which refers to originality or the capability to produce unique ideas (Ward, Smith, & Fink, 1999). However, as described by Zamel (1983), the non-gifted students in this experience appeared to be less competent writers who tended to perceive writing as an association of sentences rather than the production of whole composition. This was confirmed in the interviews with the non-gifted students who acknowledged that what made the task really challenging for them was their L2 proficiency that was rather weak.

Adding to that, the other important internal factor that seemed to influence the student's creative writing in a PBL environment was motivation or task commitment. As claimed by Barbot et al. (2012) the motivational factor seemed to have a great effect on students' creative writing. In effect, the PBL approach offered the students the possibility to have a voice (Gilligan, 1993) and to make their own choices, which raised both the gifted and non-gifted students' interest in their learning and consequently positively affected their final products. Yet, one main difference between the gifted and non-gifted students as shown in the analysis of their interviews was that the gifted showed more intrinsic motivation through their commitment to the task. This aligns with what was argued by Clinkenbeard (2012) who believes that students who are intrinsically motivated demonstrate special interest, curiosity and focus on the task. It was clear to the observer and it was also revealed by the results from the interviews that the gifted students showed much more perseverance and were more focused on excelling in their work rather than just accomplishing it. Such a finding also confirms Renzulli's (1978) theory about giftedness where task commitment is one of the

major traits of gifted students. Hence, persistence and readiness for challenging tasks as one of the main traits of gifted students as highlighted in the literature (Renzulli, 1978; Davis, Rimm & Siegle, 2011; & Pfeiffer, 2009) made their achievement in their final written products far exceed that of the non-gifted students (Feldhusen, 2001). Apart from their enthusiasm about their work, these academically gifted students with their language talent had a personal desire to express their own ideas on a topic through writing as described in the analysis of their interviews. Conversely, even though the non-gifted students were happy to choose their own topics, what motivated them and helped them to accomplish their task were rather the external factors that were available in a PBL context. This implies that their motivation was mainly extrinsic and confirms that motivation involves both the personal and environmental factors (Clinkenbeard et al., 2012). The findings of this research are also good indicators that motivation can be a facilitator of academic performance (Schultz, 1993).

5.5. External factors

The external factors that shape creative writing as described by Cohen and Macaro (2007) are task-related factors and topic related factors. The latter stands for the familiarity of the topic as an important factor that can impact the learners' writing. In this study, the importance of such a factor in shaping students' creative writing was confirmed by analyzing the data gathered from the field notes and the students' interviews. In this PBL experience, all the students strongly believed that the familiarity of the topic helped them a lot with their writing task. They all reported that having had the chance to choose topics that are relevant to them and that are related to their real world, has positively affected their performance and heightened their motivation. The relatedness of the familiarity of topic to PBL also stems from the fact that connection to the real world is one of the aspects of PBL as argued by some researchers (Bottino & Robotti, 2007). Furthermore educators and theorists are encouraging reality-centred projects as ways to engage students in meaningful learning. (Hung, Hwang & Huang, 2012).

However, the current research has also revealed other external factors that affected the students' creative writing and that are specific to a PBL experience. Namely, the use of technology and the teacher's feedback were referred to in the students' interviews as variables that greatly helped them with their writing task in this empirical research. It could

be concluded from the students' responses that such factors have also heightened their extrinsic motivation, particularly the non-gifted ones. This finding corroborates what was found in other studies about the use of technology that can greatly benefit the students in a PBL experience. For example, similar findings about the positive effect of the internet on students' creative writing were conveyed by Majid, Tan and Soh's (2003). Also, as it was found by Chu, Tse and Chow (2011), the current study confirmed that the use of the computers and the internet, created a more learner- centered atmosphere and made instruction more effective than it might be in a traditional classroom. Besides, the use of technology can help teachers to meet the learners' different needs and learning styles. For instance, the researcher could observe that working individually in a PBL context appealed to the gifted students who are usually more responsible with a preference to work alone or with other gifted peers (Renzulli & Reis, 1997) so that they can go at their own pace. It made them feel more autonomous and they became the owners of their learning. This is very similar to the findings of Dunn et al. (1989) and Ricca (1984), who reported that the academically gifted had a strong preference for learning alone and for tactile learning. As for the non-gifted, even though it was highly challenging, they also found working alone was useful because they could go at a slower pace and could understand better with the help of the observer as they stated. Additionally, the non-gifted repeatedly insisted that the use of technology helped them with information and language accuracy.

On the other hand, the other external factor that impacted the students' creative writing as highlighted in the interviews, was the continuous feedback that was provided by the observer throughout the writing process. This confirms what was said by Moursand (1999) who identified teacher's guidance among other important features of PBL. Such constructive feedback helped to scaffold learning for the non-gifted and allowed the gifted to produce impressive written products of which they were proud. Thus, as found by Taveau (2005) in a similar study, PBL proves to be a useful formative assessment tool that promotes assessment for learning and not assessment of learning. This type of evaluation provides the students with a more secure atmosphere where they can learn better by recognizing their own mistakes. Another aspect of formative assessment in this study was also through the use of the self-assessment rubric (Appendix I). This was also referred to by Taveau (2005) as 'reflection'. All the students expressed a positive attitude towards self-evaluation (reflection) because it made them aware of their own mistakes and they learnt how to avoid them. Such finding confirms the goal of this kind of evaluation that could extend students'

metacognitive consciousness and made them more effective learners (Taveau, 2005). In sum, this empirical study confirmed that within a PBL context some internal and external elements that can shape creative writing are available. Consequently, such factors enhanced the gifted as well as the non-gifted students' creative writing skills.

Research Question 3: What are the high school teachers' perceptions of their role in PBL and in nurturing students' creativity?

5.6 PBL From Teachers' Perspectives

The findings from the teachers' questionnaire that aimed at investigating the teachers' perceptions about their role in PBL and in nurturing creativity, have conveyed a very positive attitude towards PBL as an effective instructional approach. Indeed, the majority of the targeted teachers who have already had a long experience with PBL in their schools conveyed that PBL can be an effective means to enhance students' creativity. Indeed, 63.1% of them agreed and 30.6% highly agreed (93.7 % in total) about all the statements in the section entitled "Project Based Learning and Creativity". This is similar to Hung, Hwang & Huang's study (2012) which revealed that according to experienced teachers, students learn best through a project-based approach in which they can explore things by themselves and benefit from technological tools. The teachers in the current study also showed that they are highly aware of their changing role in a PBL context where the teacher is expected to act merely as a facilitator who helps the students in constructing their own learning as previously highlighted by Taveau (2005). However, in spite of this consensus about the usefulness of PBL, the findings also revealed that the teachers had limited background knowledge about some features of PBL (Table 3). While the majority agreed that PBL can be an effective instructional approach, they were not sure how this can be achieved. The confusion that was evident in their responses to the question about PBL as a formative assessment tool (Table 3) implied that this is an area in which they needed training. Yet, even though they agreed that PBL enhances creativity, a few of them could not see that creativity is not only innate but can also be nurtured by teachers through instruction as argued in the literature (Sternberg & Lubart 1995). Actually, 41.4% disagreed and 6.9% highly disagreed (48.3% in total) about statement B5 (Table 6) which conveys their unconsciousness about their role as teachers in enhancing students' creativity.

Additionally, even though the teachers did not deny the positive side of PBL, they also highlighted some challenges by which they are faced during its implementation. This is similar to what was found by Tongsakul , Jitgarun, and Chaokumnerd (2011) in his study about PBL as he reported that creating the suitable classroom environment required by PBL constitutes a challenge for instructors in Thailand. In this study, time management was at the top of the list among the teachers' concerns, which is actually very true. One of the big challenges that the teachers face in the implementation of PBL is how to manage time especially that this kind of practice goes over an extended period of time. In the current study, the participant observer was also faced by this challenge especially with the non-gifted students who needed more time and scaffolding. The problem with time management in the implementation of PBL was also highlighted in other previous studies because if in-depth investigations necessitate more time, then less time might be left for the other content in the curriculum (Grant, 2002). Furthermore, the high rate of the teachers' positive answers about professional development (Table7) implies that they are conscious that what they know about PBL is not enough to implement it successfully. What they need is a mastery of the tools that can ensure that such a learning experience can benefit their students at the maximum (Tongsakul; Jitgarun & Chaokumnerd, 2011).

To conclude, the findings of this study have helped to answer all the research questions and have confirmed the hypothesis about the use of PBL as a viable differentiation technique for gifted and non-gifted students to enhance their creative writing skills. However, a few issues were also revealed about the implementation of PBL for which some recommendations will be suggested in the next chapter.

CHAPTER 6

CONCLUSION

The impetus of this empirical study was to explore how PBL could be a useful differentiation technique for the gifted and non-gifted students to enhance their creative writing skills. The rationale behind the choice of this topic was to bridge a gap in the literature. Many studies were conducted about giftedness and gifted students around the world but most of them focused on the procedures of identification and the different types of provisions rather than on the practices. Adding to that, at the local level, the theme of gifted education seems to be rarely tackled. Very little research has been conducted about gifted students in the UAE and none of them investigated how to meet the needs of this specific group of learners within a mixed ability classroom especially that no enrichment national program is provided. Drawing on the positive assumptions established in the literature about PBL as a student-centered approach, the present study was carried out to investigate its effectiveness in enhancing gifted and non-gifted students' creative writing in the English classroom.

Given the exploratory nature of this research, a variety of methodological tools were adopted to collect both qualitative and quantitative data that helped answer the research questions. The research subjects were four grade 11 female students (2 gifted and 2 non-gifted) in a MAG school and 29 high school English teachers working in MAG schools.

The findings of this study confirmed the hypotheses on which the research was based. By analyzing the students' written products, it was found out that in a PBL environment, all students showed an improvement in their creative writing. However, the gifted students showed better improvement in terms of creativity which proves the validity of this approach to enhance gifted students' creative skills and its usefulness as a differentiation technique. The features of PBL as demonstrated in the literature review are behind the potential and substantial benefits that could be seen in this study. Actually, by experiencing autonomous learning, using technology, having a choice and voice in what they are doing and receiving constructive feedback from the observer, the gifted students scored excellent results and their motivation was heightened. This confirms the claim that gifted students learn best in an

environment that stimulates their motivation for learning and when they are challenged by activities that are suitable for their higher abilities. Yet, the safe assessment-free classroom climate where the teacher is a facilitator rather than an error hunter also helped to scaffold learning for the non-gifted. Thus, PBL can be considered as a “comprehensive” instructional approach that offers opportunities for authentic learning depending on the interests and abilities of the learners.

The findings from the teachers’ questionnaires and their positive attitudes towards PBL further consolidated the effectiveness of this pedagogical approach. However, the challenges revealed about the implementation of such a strategy and the uncertainty of some teachers about whether creativity can be nurtured by teachers or not imply a few recommendations that will follow in the next section.

6.1 Recommendations

The first challenge by which the researcher was faced in this study, was the under-identification of the gifted students as no formal official tool was available to identify them. Therefore, it is recommended that more attention should be paid to gifted students in the UAE schools. Also, carefully designed instruments are needed to identify the gifted and talented rather than relying on achievement test scores in order to offer them the suitable provisions such as curriculum enrichment. Apart from all the positive findings about the use of PBL as an effective teaching strategy, this study also revealed that the teachers had limited knowledge about formative assessment and how to teach creativity. A few of them even think that creativity is purely innate. These findings indicate that teachers need more professional development about how to nurture students’ creativity and how to use assessment to enhance students’ learning. Training teachers in creativity is highly recommended as it affects their attitudes towards highly creative gifted students. Moreover, teachers need to be made aware that creative students learn best in less evaluative environments.

6.2 Limitations and Future Research

Like any other study, this study has got its limitations. Firstly, even though the use of the case study yielded a lot of valuable qualitative data, this might make it difficult to

generalize the findings that are specific to the participants and to the context of the study. Only four students from grade 11 were involved in this case study in a girls' MAG school where PBL is central to the curriculum and is conducted at school under the supervision of the teacher. However, if more students from different public schools were included in this study, the findings might have been different. The second limitation of the study consists in the role played by the researcher. Being a participant observer might affect the interpretations of the findings. Even though concept checks were used with the interviewees to secure the validity of the data collected from the interviews, the field notes might still be subjective and this impedes generalization as well. The final limitation lies in the students doing their projects individually which is not always possible within large classes.

Therefore, further research about the same topic should be conducted at a larger scale. A bigger number of students should be included and more schools involved to substantiate the findings and have a wider picture about how PBL can help maximize students' learning. Moreover, future research should investigate how cooperative learning can affect the students' final written products and whether individual differences can be reflected in such products. Lastly, future research might also examine teachers' implementation of PBL in their classrooms as this would yield more information about the strengths and weaknesses of such an instructional approach.

References:

A Report For The Council Of Curriculum, Examinations And Assessment (CCEA). (2006). *Gifted And Talented Children In (And Out) Of The Classroom* [Accessed on 10 April 2014] Available at:

<http://www.ncca.ie/uploadedfiles/publications/gifted%20and%20talented%20children.pdf>

Ace, T.W., Kim, H., Kim, H. J., Kim, J., Chu, H. R., Kim, M., (2010). Academic boredom in under- and over-challenging situations. *Contemporary Educational Psychology*, vol. 35, pp.17-27.

Al Obaidli, A. (2006). *Educating The Gifted and Talented in Government schools in the United Arab Emirates (UAE): Status And Recommendations*. Masters dissertation., The British University in Dubai, Dubai.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of Educational Psychology*, vol. 84, pp. 261-271.

Barbot, B., Tan, M., Randi, J. Santa-Donato, G. & Grigorenko, E.L. (2012). Essential skills for creative writing: Integrating multiple domain-specific perspectives. *Thinking Skills and Creativity*, vol. 7, pp. 209– 223.

Berninger, V. W., Cartwright, A., Yates, C., Swanson, L., & Abbott, R. (1992). Lower-level developmental skills in beginning writing. *Reading and Writing: An Interdisciplinary Journal*, vol. 4(3), pp. 258.

Black, P., and D. Wiliam. 1998. Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice*, vol. 5 (1), pp. 7-73.

Bloom, B. S (1985) *Developing Talent in Young People*. New York: Ballantine Books.

Bloom, B.S. , Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of educational objectives: Handbook I: Cognitive domain*. New York: David McKay.

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, *Educational Psychologist*, vol. 26 (3&4), pp.396-398.

Boaler, J. (1997). *Experiencing school mathematics; Teaching styles, sex, and settings*. Buckingham, UK: Open University Press.

Bottino, R. M. & Robotti, E. (2007). Transforming classroom teaching and learning through technology: Analysis of a case study. *Educational Technology & Society*, vol. 10(4), pp. 174-186.

Caldwell, G.P. & Ginther, D.W. (1996). Differences in Learning Styles of Low Socioeconomic Status for low and High achievers, *Education Journal*, vol. 117(1), pp. 141-146.

Campbell, S. A. (2012). The Phenomenological Study of ESL Students in a Project-based Learning Environment, *The International Journal of Interdisciplinary Social Sciences*, vol. 6 (11), pp. 139-152.

Cantrell, M.K. (2012). *A Comparative Study of the Impact of School Characteristics on the Development of Gifted Student Potential*, Doctoral dissertation. Piedmont College.

Chen, S., & Zhou, J. (2010). Creative writing strategies of young children: Evidence from a study of Chinese emergent writing. *Thinking Skills and Creativity*, vol. 5(3), pp. 138-149.

Chu, S. K. W., Tse, S. K., & Chow, K. (2011). Using collaborative teaching and inquiry project-based learning to help primary school students develop information literacy and information skills. *Library & Information Science Research*, vol. 33(2), pp. 132-143.

Clinkenbeard, P.R (2012). Motivation And Gifted students: Implications of Theory and Research. *Psychology in the Schools*, vol. 49(7), pp. 622-630.

Cohen, D. & Crabtree, B. (2006). 'Qualitative Research Guidelines Project.' [Accessed 30April 2014.] Available at:
http://www.sswm.info/sites/default/files/reference_attachments/COHEN%202006%20Semistructured%20Interview.pdf

Cohen, A.D & Macaro, E. (2007). *Language Learner Strategies*. Oxford : Oxford University Press.

Coker, D. (2006). Impact of first-grade factors on the growth and outcomes of urban schoolchildren's primary grade writing. *Journal of Educational Psychology*, vol. 98(3), pp. 471-473.

Colangelo, N and Davis, G.A. (2003). *Handbook of Gifted Education*. Boston: Pearson.

Coleman, M. R. (2003). The Identification of Students Who Are Gifted, *ERIC Digest*. VA; Arlington: *ERIC Clearinghouse on Disabilities and Gifted Education*. [Accessed 16 March 2014]. Available at: <http://www.vtaide.com/png/ERIC/gifted-identification.htm>

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, And Mixed Method Approaches*. 2nd Edition. USA: Sage Publications.

Creswell, J. (2007). *Qualitative Inquiry & Research Design: Choosing Among Five Approaches*. London: Sage

Creswell, J. (2012). *Educational research: planning, conducting, and evaluating quantitative and qualitative research*. Boston: Pearson

Cropley, A.J. (1997). Fostering classroom creativity. In M.A. Runco (Ed), *The creativity research handbook* , vol. 1., pp. 83-114.

Csikszentmihalyi, M., Rathunde, K., & Whalen, S. (1993). *Talented teenagers: The roots of success and failure*. New York: Cambridge University Press.

Dai, D. Y., Swanson, J. A., & Cheng, H. (2011,). State of research on giftedness and gifted education: A survey of empirical studies published during 1998-2010 (April). *Gifted Child Quarterly*, vol. 55(2), pp. 126-138.

David, J. (2008). What research says about project-based learning. *Educational Leadership*, vol.65, pp. 80-82.

Davis, G, Rimm and S.B, Siegle, D. (2011). *Education Of The Gifted And Talented*. New Jersey: Pearson.

Dewey, J. (1938). *Experience and education*. New York: Collier Books.

Downing, K., Kwong, T., Chan, S., Lam, T., & Downing, W. (2009). Problem-based learning and the development of metacognition. *Higher Education*, vol.57(5), pp.609-621.

Dunn, R., Dunn, K., & Price, G. E. (1989). *Learning Style Inventory*. Lawrence, KS: Price Systems.

Dunn,R. & Dunn, K. (1992). *Teaching elementary students through their individual learning styles*. Needham Heights MA: Allyn and Bacon.

Eckhoff, A., & Urbach, J. (2008). Understanding imaginative thinking during childhood: Sociocultural conceptions of creativity and imaginative thought, *Early Childhood Education Journal*, vol. 36(2), pp. 179-185.

Feldhusen, J. F.(2001). Education for Gifted and Talented Children, *International Encyclopedia of the Social & Behavioral Sciences*, pp.4208-4213.

Gaad, E, Arif, M. & Scott, F. (2006). Systems Analysis of the UAE Education System, *International Journal of Educational Management*, Vol. 20 (4), pp. 291-303.

Gagne', F. (1999) The multigifts of multitalented individuals. In S. Cline & K.T. Hegeman(eds.) *Gifted Education in the Twenty first Century*. New York:Winslow Press, pp. 17-46.

Gallagher, J. (2009). The public policy landscape for gifted education. In B. MacFarlane & T. Stambaugh (Eds.), *Leading change in gifted education*. Waco, TX: Prufrock Press Inc., pp. 481-489.

Gardner, H. (1983). *Frames of Mind, The Theory of Multiple Intelligences*. New York: Basic Books.

Grant, M.M. (2002). Getting A Grip On Project-Based Learning: Theory, Cases And Recommendations Meridian: A Middle School Computer Technologies Journal, vol. 5, Issue 1, [Accessed 8 April 2014] Available at:
<http://www.ncsu.edu/meridian/win2002/514/project-based.pdf>

Grant, M.M. & Branch, R.M.(2005). Project-Based Learning In a Middle School: Tracing Abilities Through The Artifacts of Learning, *Journal of Research on Technology in Education*, vol. 38, pp.65-89

Guilford, J. P. (1950). Creativity. *American Psychologist*, vol.5, pp. 444- 454.

Hodges, H. (1985) *An Analysis of the relationships among preferences for a formal/ informal design, one element of learning style, academic achievement, and attitudes of Seventh and eighth grade students in remedial mathematics classes in a New York City junior high school*. Doctoral dissertation, St. John's University.

Hung, C.M, Hwang, G.J, & Huang, I (2012). A Project-based Digital Storytelling Approach for Improving Students' Learning Motivation, Problem-Solving Competence and Learning Achievement. *Educational Technology & Society*, vol.15 (4), pp. 368–379.

Kapiszewski, A. (2000). Population, Labor and Education Dilemmas Facing GCC States at the Turn of the Century. *Cross-Roads of the New Millennium. Proceedings of the Technological Education and National Development (TEND) Conference* (April 8-10), Abu Dhabi, United Arab Emirates, p. 43.

Kasper, L.F.(1997). Assessing the metacognitive Growth of ESL Student Writers. *TESL-EJ Journal*, vol.3 (1), pp.1-20

Kasper, L.K. (2000).New Technologies, New Literacies: Focus Discipline Research and ESL Learning Communities, *Language Learning & Technology* ,vol. 4(2), pp. 105-128.

Kelemena, G (2010). *A Personalized Model Design for Gifted Children's Education Psychology and Social Work*, No 2, 310330, January 18, 2010, pp. 3981–3987

Khaldieh, A.S.(2000) Learning Strategies and writing process of proficient vs. less-proficient learners of Arabic, *Foreign Language Annuals*, vol.33 (5), pp. 522-33

Knoll, M. (1997). The project method: Its vocational education origin and international development. *Journal of Industrial Teacher Education*, vol. 34(3), pp. 59-80.

Little, C. (2012). Curriculum As Motivation For Gifted Students. *Psychology in the Schools*, vol. 49(7), pp. 695-705.

Lubart, T. I. & Sternberg, R. J. (1995). An investment approach to creativity: Theory and data. In S. M. Smith, T. B. Ward, & R. A. Finke (Eds.), *The creative cognition approach*. Cambridge, MA: MIT Press, pp. 269-302.

Lupu, V. (2013). Effect Of Academically Giftedness On Creativity, *Social-Behavioural Science*, vol. 70, pp.148-155.

Majid, D.A, Tan, A.G. & Soh, H.C (2003). Enhancing Children's Creativity: An Exploratory Study on Using the Internet and SCAMPER as Creative Writing Tools. *The Korean Journal of Thinking & Problem Solving*, vol. 13(2), pp.67-81.

Manning, S. (2006). Recognizing Gifted Students: A Practical Guide for Teachers. *Kappa Delta Pi Record*. Winter Issue, pp. 64-68.

Manning, S., Stanford, B., & Reeves, S. (2010). Valuing the advanced learner: Differentiating up. *The Clearing House*, vol. 83(4), pp. 145-149.

Mergendoller, J. R., Maxwell, N., & Bellisimo, Y. (2007). The effectiveness of problem based instruction: A comparative study of instructional methods and student characteristics. *Interdisciplinary Journal of Problem-Based Learning*, vol. 1(2), pp. 49-69.

Ministry of Education (MOE) (2010). *School for All: General Rules for the Provision of the Special Education Programs and Services (public and private schools.)* [Accessed 2 March 2014]. Available at: <https://www.moe.gov.ae/English/SiteDocuments/Rules/SNrulesEn.pdf>

Moursund, D. (1999). *Project-based learning using information technology*. Eugene, OR: International Society for Technology in Education.

Nare, A. T and Buck, G. (2011). Using Formative Assessment In Problem- And Project-Based Learning, *The Science Teacher Journal*. [Accessed 5 April 2014]. Available at: <http://conferences20102011.wikispaces.com/file/view/Assessment%20for%20Learning%20article.pdf/191422662/Assessment%20for%20Learning%20article.pdf>

Neo, M., & Neo, T.K. (2009). Engaging students in multimedia-mediated constructivist learning-Students' perceptions. *Educational Technology & Society*, vol. 12(2), pp. 254-66.

No Child Left Behind Act of 2001, Pub. Law No. 107-110, § 2204 (2002). Washington, DC: Office of Elementary and Secondary Education. [Accessed 2 April 2014]. Available at : <http://www.ed.gov/policy/elsec/leg/esea02/pg34.html#sec2401>

Nunan, D.(1992). *Research methods in Language Learning*. Cambridge, UK: Cambridge University Press.

Orevi, N., & R. Dannon.(1999). Learning ecology with educational technologies. Paper presented at the International Workshop on Science Teachers Education Toward the New Millennium, Haifa, Israel.

Pekrun, R., Goetz, T., Daniels, L. M., Stupnisky, R. H., & Perry, R. P. (2010). Boredom in achievement settings: Exploring control-value antecedents and performance outcomes of a neglected emotion. *Journal of Educational Psychology*, vol. 102, pp. 531 - 549.

Penuel, W. R., & Means, B. (2000). Designing a performance assessment to measure students' communication skills in multi-media-supported, project-based learning. Paper presented at the Annual Meeting of the American Educational Research Association, New Orleans.

Pfeiffer, S.I (2012). Current Perspectives on the Identification and Assessment of Gifted Students, *Journal of Psycho-educational Assessment*, vol. 30(9), pp. 3-9.

Pizzo, J. (1981). *An investigation of the relationships between selected acoustic environments and sound, an element of learning style, as they affect sixth grade students' reading achievement and attitudes*. Doctoral dissertation, St. John's University.

Powers, E.A. (2008). The Use of Independent Study as a Viable Differentiation Technique for Gifted Learners in the Regular Classroom, *Gifted Child Today*, Vol. 31(3) (Summer), pp. 57-65.

Renzulli, J. S. (1978). What makes giftedness? Reexamining a definition. *Phi Delta Kappan*, vol. 60(5), pp. 180-184

Renzulli, J. (2003). Conception of Giftedness and Its Relationship to the Development of Social Capital. In N. Colangelo & G. Davis, (eds) *Handbook of Gifted and Talented, Third Edition*, Boston: Allyn and Bacon, pp.75-87.

Renzulli, J. S., & Reis, S. M. (1991). The reform movement and the quiet crisis in gifted education. *Gifted Child Quarterly*, vol. 35, pp. 26 -35.

Ricca, J. (1984). Learning Styles And Preferred Instructional Strategies Of Gifted Students. *Gifted Child Quarterly*, vol. 28, pp. 121-126.

Robinson, A., & Clinkenbeard, P. R. (2008). History of giftedness: Perspectives from the past presage modern scholarship. In S. Pfeiffer (Ed.), *Handbook on giftedness in children: Psycho-educational theory, research, and best practices* New York: Springer Science, pp. 13-31.

Robson, C. (2002) *Real World Research, Second Edition*. Malden: Blackwell Publishing.

Sahabudin, N.A & Ali, M.A. (2013). Personalized Learning and Learning Style Among Upper Secondary School Students. *Social and Behavioral Sciences*, vol. 103, pp. 710 – 716.

Schultz, G.F. (1993). Socioeconomic advantage and achievement motivation: Improvement mediators of academic performance in minority children in urban schools, *The Urban Review*, vol.25 (3), pp. 221-232.

Schunk, D. H., Pintrich, P. R., & Meece, M. L. (2008) *Motivation in education: Theory, research, and applications* (3rd ed.). Upper Saddle River, NJ: Pearson.

Shanahan, T. (2006). Relations among oral language, reading, and writing development. In C. A. MacArthur, S. Graham, & J. Fitzgerald (Eds.), *Handbook of Writing Research*. New York: Guilford Press, pp. 171-183.

Shih, J. L., Chuang, C. W., & Hwang, G. J. (2010). An inquiry-based mobile learning approach to enhancing social science learning effectiveness. *Educational Technology & Society*, vol.13 (4), pp. 50-62.

Soh, K.C. (2001). *Blue apples and purple oranges: When children paint like Picasso*. The second internal symposium on child development (16-28th June). Child Development Centre, the Hong Kong Baptist University.

Sousa, D.A (2003). *How the Gifted Brain Learns*. California: Sage Publications

Stenberg, R. (2003). Giftedness According to the Theory of Successful Intelligence. In N. Colangelo , & G.A.Davis, (eds.) *Handbook of Gifted Education* (3rd edn), Boston: Allyn & Bacon (Eds.), pp.88-99.

Sternberg, J.R. (2006). The Nature of Creativity, *Creativity Research Journal*, Vol. 18(1), pp. 87-98.

Sternberg, R.J., & Lubart, T. (1995). Creating creative minds. In A. Ornstein & L. Behar (Eds), *Contemporary issues in curriculum*. Boston: Allyn & Bacon, pp.153-162.

Tamim, S. R., & Grant, M. M. (2013). Definitions and Uses: Case Study of Teachers Implementing Project-based Learning. *Interdisciplinary Journal of Problem-based Learning*, vol. 7 (2), pp. 72-101.

Tan, A.G. (2000). A review on the study of creativity in Singapore. *Journal of Creative Behavior*, vol.34(4), pp. 259-284.

Taveau, R. L. S. (2005). *Computer-Assisted Project Based Learning in Second Language: Case Studies in Adult ESL*. Doctoral Dissertation, The University of Texas at Austin.

Thomas, J.W.(2000). A Review Of Research On Project-Based Learning [Accessed 10 April 2014].Available at: http://www.bie.org/index.php/site/RE/pbl_research/29

Thomson, D. L.(2010). Beyond the Classroom Walls: Teachers' and Students' Perspectives on How Online Learning Can Meet the Needs of Gifted Students, *Journal of Advanced Academics*, vol.21(4) , pp. 662–712.

Tomlinson, C. (2004). Sharing responsibility for differentiating instruction .*Roeper Review*, vol. 26, pp. 188-189.

Tomlinson, C. A. (2001). *Differentiate Instruction in Mixed-Ability Classrooms*. 2nd ed. Upper Saddle River, NJ: Merrill Prentice Hall.

Tomlinson, C. A. (2004). Differentiation in diverse settings. *School Administrator*, vol. 61(7), pp. 28-33.

Tongsakul, A, Jitgarun, K.& Chaokumnerd, W. (2011). Empowering Students Through Project-Based Learning: Perceptions Of Instructors And Students In Vocational Education Institutes In Thailand. *Journal of College Teaching & Learning* , vol. 8 (12), pp.19-34.

VanTassel-Baska, J. (2005). Gifted programs and services: What are the nonnegotiables? *Theory Into Practice*, vol. 44, pp. 90- 97.

VanTassel-Baska, J. (2011). An introduction to the integrated curriculum model. In J. VanTassel-Baska & C. A. Little (Eds.), *Content-based curriculum for high-ability learners*. 2nd ed. Waco, TX: Prufrock Press, pp. 9-31.

Vygotsky, L. S. (1978). *Mind In Society: The Development Of Higher Psychological Processes*. Cambridge, MA: Harvard University Press.

Ward, T., Smith, S. M., & Fink, R. A. (1999). Creative cognition. In R. J. Sternberg (Ed.), *Handbook of creativity*. Cambridge: Cambridge University Press, pp.189-212.

Wolk, S. (1994). PBL: Pursuits with a purpose. *Educational Leadership*, vol. 52(3), pp. 42-45.

Yin, R.K (1984). *Case Study Research: Design and Method*. Sage Publications.

Zajac, M. (2009). Using Learning Styles to Personalize Online Learning. *Campus-Wide Information Systems*, vol. 26(3), pp. 256-265.

Zamel,V.(1983). The composing processes of advanced ESL students: six case studies. *TESOL Quarterly*, vol.17 (2), pp.165-87.

Appendix A

Language Talent Rating Scale

Students with high ability in language do tend to display common characteristics, especially by the time they reach middle school where language fluency rapidly develops. Use the scale below to help decide if a particular student is gifted in language arts. If you rate the student with scores of 4 or 5 on more than half of the characteristics, then further assessment is warranted.

The student...	A little	Some	A lot
1. Writes or talks in imaginative and coherent ways.	1	2	3 — 4 — 5
2. Organizes text in a manner that is exceptional for the student's age.	1	2	3 — 4 — 5
3. Expresses ideas succinctly and elegantly.	1	2	3 — 4 — 5
4. Writes with a flair for metaphorical and poetic expression.	1	2	3 — 4 — 5
5. Takes the lead in helping a group reach its writing goal.	1	2	3 — 4 — 5
6. Easily grasps the essence of a writing style and adapts it for personal use.	1	2	3 — 4 — 5
7. Can capture and maintain the attention of an audience by using drama and humor in imaginative ways.	1	2	3 — 4 — 5
8. Engages creatively and seriously with social and moral issues expressed in literature.	1	2	3 — 4 — 5
9. Justifies opinions convincingly.	1	2	3 — 4 — 5
10. Shows special awareness of language features, such as intonation, rhyme, accents in spoken language, and grammatical organization in written texts.	1	2	3 — 4 — 5
11. Presents reason arguments at the hypothetical or abstract level in both spoken and written language.	1	2	3 — 4 — 5

Adopted from Sousa (2003, p. 117)

Appendix B

Language Creativity Rating Scale

1. ORIGINALITY OF IDEAS	1	2	3	4	5
	Very minimal originality Ideas are very common and predictable.		Show substantial level of originality. Evidence of a few unique ideas.		Ideas are well developed Strong evidence of originality. <i>Essay</i> is unique.
2. FLUENCY OF IDEAS	1	2	3	4	5
	Very limited ideas. Content is not developed due to limited substance and content.		Substantial ideas. Content is quite developed. Ideas are interconnected and relevant.		Very fluent in expression. Many interconnected ideas. Content is well developed.
3. FLEXIBILITY OF IDEAS	1	2	3	4	5
	Very restricted ideas. Content is very similar to peers. Narrow scope.		Show some flexibility in presen- ting ideas. Quite different from peers. Wider scope.		Very flexible and comfortable in presenting variety of ideas related to an issue.
4. ELABORATION ON INITIAL IDEAS	1	2	3	4	5
	Unable to elaborate initial ideas Ideas are not expanded effectively <i>Essay</i> does not flow fluently.		Initial ideas are quite deve- loped. <i>Essay</i> flows rather fluently.		Initial ideas are well deve- loped. Ideas flow smoothly. <i>Essay</i> is elaborated fluently.
5. RICHNESS OF VOCABULARY	1	2	3	4	5
	Vocab is very limited. Words used are very common. Some Words are used in the wrong context.		Vocab is quite rich. Some words are quite common. Most words are used in the correct context.		Very rich vocab. Very interesting and original words. Words are used appropriately.
6. COMPLEXITY OF SENTENCES	1	2	3	4	5
	Very simple sentence structure. Mostly short sentences. Very limited no. of complex sentences.		More developed sentence structure. Evidence of com- plex sentence formation.		Sentences are well de- veloped. High level of sentence complexity.
7. ACCURACY IN GRAMMAR	1	2	3	4	5
	Very weak in grammar. Numerous errors eg tenses syntax, spelling, punctuation		Reasonable amt of grammar errors. Still need improve- ment in tenses, syntax, spelling punctuation.		Grammatically accurate. Very minimal grammar errors.

Adapted From Majid, Tan and Soh (2003, p. 75)
(Story modified for essay)

Remarks:

1. Originality - depending on originality of ideas .
2. Fluency - depending on the development of ideas. Interconnectedness.
3. Flexibility - depending on the scope of the composition. Flexibility in processing ideas.
4. Elaboration - level of elaboration and expansion of initial ideas.
5. Richness of vocabulary - depending on the extensiveness of words used. Appropriate use of suitable words.
6. Complexity of sentences - depending on complexity of sentence structure. Development of sentences.
7. Accuracy in grammar - Include items such as tenses, syntax, spelling, and punctuation

Appendix C

Language Creativity Score Sheet

	Gifted				Non-Gifted			
Component	GS1		GS 2		NG1		NG2	
Originality	Draft 1	Draft 2	Draft 1	Draft 2	Draft 1	Draft 2	Draft 1	Draft 2
Fluency								
Flexibility								
Elaboration								
Richness of vocabulary								
Complexity of sentences								
Accuracy								
Total Score								

Appendix D

Questions for the semi-structure interviews

Question 1:

Do you think that your level of English has helped you or has been an obstacle to the accomplishment of this task?

Question 2:

What did you find motivating in this project work experience?

Question 3:

What did you enjoy about completing your project? Are you happy that it is over or are you proud of your product?

Question 4:

Why did you choose to work on this topic for your project?

Question 5

To what extent was this task challenging for you and what was the challenge?

Question 6

Do you think that the project work has helped you improve your writing skills? How?

Appendix E

Questionnaire: Teachers' Perceptions about Project Based Learning (PBL)

Directions for Respondents

This questionnaire asks you to give your opinion about Project Based Learning in a teaching and learning experience.

There are no 'right' or 'wrong' answers. Your opinion is what is wanted.

Part A asks you to answer the 5 open-ended questions.

In part B, think about how well each statement describes what the Project Based Learning approach is like for you.

Put a tick (✓) in the column that corresponds to your opinion.

Please be sure to give an answer for all questions. If you change your mind about an answer, just cross it out and tick another one.

Background information

Gender:

Age :

Number of years of experience:

Part A

- 1) What is your understanding of Project Based Learning (PBL)?
.....
- 2) What is your understanding of creativity?
.....
- 3) What do you think of PBL as a differentiation technique?
.....
- 4) To what extent do you think that PBL is a useful formative assessment tool? Why?
.....
- 5) What are the challenges that you face when you implement PBL?
.....

Part B

Criteria	Highly Disagree	Disagree	Agree	Highly agree
<u>A. Project Based Learning and Creativity</u>				
1-PBL gives the students a chance to choose their areas of interest which heightens their motivation and opens the horizons for their creativity.				
2- PBL exposes students to challenging tasks that can improve their cognitive and creative abilities.				
3 .Learning by doing refers to a student creating his/her own understandings through real-life activities.				
4- PBL allows students more autonomy which is one of the traits of creativity.				
5-PBL as a formative assessment tool allows students to reflect on their own learning.				
6- Project work is one of the best teaching strategies to enhances students' creativity				
<u>B. Role of the Teacher</u>				
1.In a PBL environment, the teacher acts as a facilitator who encourages students' independence and allows them to be more creative				
2- Teachers should be conscious of what is creativity and how to improve their students' creative skills.				
3- As a formative assessment tool, PBL gives way for the teacher's constructive feedback which promotes students' creativity.				
4. The characteristics of PBL help teachers to nurture students' creativity and high thinking skills.				
5. Creativity is not only innate but it can also be taught by a competent teacher.				
6- Time management is easy to handle in a PBL experience				
<u>C. Professional Development</u>				
1-Teachers need to be trained on how to implement Project Based Learning.				
2. Teachers should be aware of their role in nurturing students' creative skills.				
3. Teachers should be trained on how to improve their students' creative skills.				

Appendix F

Grant's Elements of Project Based Learning (2002)

Project-based science, disciplined inquiry and WebQuests are only three examples of project-based learning. Though all the models of project-based learning have distinguishing characteristics, there are common features across all the various implementations. These include:

- (a) an introduction to "set the stage" or anchor the activity;
- (b) a task, guiding question or driving question;
- (c) a process or investigation that results in the creation of one or more sharable artifacts;
- (d) resources, such as subject-matter experts, textbooks and hypertext links;
- (e) scaffolding, such as teacher conferences to help learners assess their progress, computer-based questioning and project templates;
- (f) collaborations, including teams, peer reviews and external content specialists; and
- (g) opportunities for reflection and transfer, such as classroom debriefing sessions, journal entries and extension activities

An extract from

Meridian: A Middle School Computer Technologies Journal
a service of NC State University, Raleigh, NC
Volume 5, Issue 1, Winter 2002

Appendix G

S.B1.20 Give brief comments on the views of others.

W.B1.16 Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.

Webquest

- 1) Click on the links below
- 2) Select 1 article from the list of suggested articles and read it.
- 3) State you opinion about the topic and fill out the persuasive essay graphic organizer
- 4) Search for more information about your topic and write a persuasive a 5 paragraph essay.

[Hooked on Video Games](#)

[Emirati IT Addiction](#)

[Web Addiction](#)

[Switching Off](#)

[Blackberry Addiction](#)

[Knowing When to Switch Off](#)

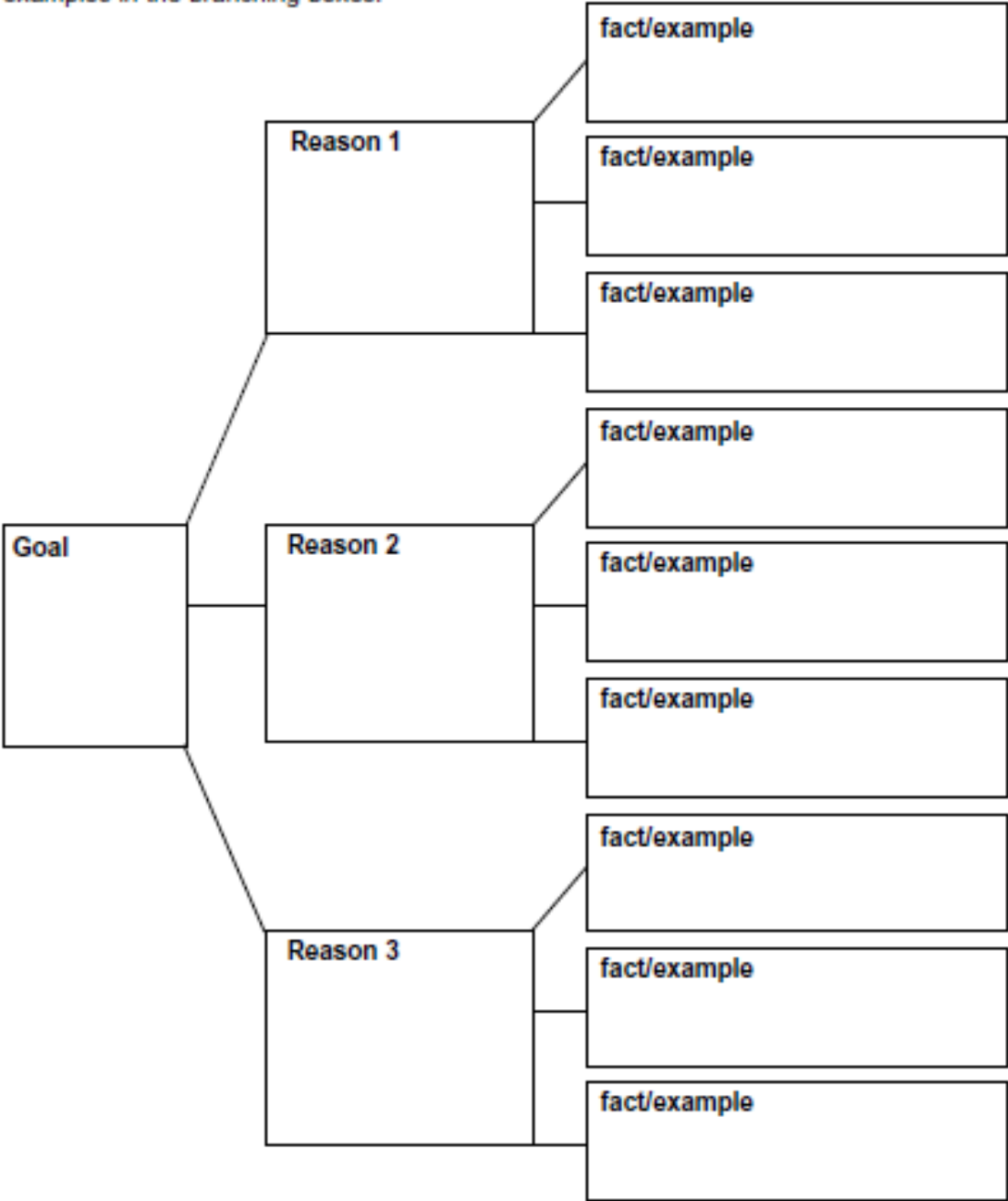
Appendix H

Persuasive Essay Outline




Name _____ Date _____

Persuasion Map

Write your goal in the first box. Write three reasons in the next boxes. List facts and examples in the branching boxes.



Appendix I**Persuasive Writing****Self – Assessment Rubric**

Have I			
stated my opinion clearly in my introduction?			
given at least two reasons to support my opinion?			
provided facts and details to support each reason?			
used multiple persuasive strategies to interest the reader in my opinion/position?			
used persuasive language?			
used clear transitions to connect paragraphs together?			
used my conclusion to sum up my ideas?			

I think I did the following really well!

I think I need to improve on the following :

Teacher comments:

Appendix J

Informed Consent Form



1. **Purpose of the Study:** The purpose of this study is to investigate how Project Based Learning can be a reliable differentiation technique for gifted and non-gifted students to enhance their creative writing skills. Your participation to this study will provide us with valuable data that can be used to find out about some successful instructional strategies to respond to students' different needs in a mixed ability classroom.
2. **Statement of Confidentiality:** Your participation in this research is strictly confidential. The data will be stored in a secure file (*password protected*). In the event of a publication or presentation resulting from the research, no personally identifiable information will appear in any reports, articles or presentations.
3. **Authorization:** Participation in this study is completely voluntary. By signing this form I am attesting that I have read and understand the information above and I freely give my consent. I understand that I will receive a copy of this form.

Participant Name (Printed or Typed):

Date:

Participant Signature:

Date:

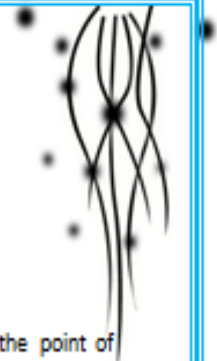
Principal Investigator Signature:

Date:

Appendix K

Gifted Student 1 Essay (Draft 2)

Sweet gone sore



Many people nowadays tend to consume junk food abundantly to the point of addiction though it's full of salt, sugar, fat and useless calories. Do you know that by eating junk food you allow diseases to enter your body in the form of food? People often justify their addiction by saying that it tastes delicious. But that's when the sweet goes sore because it has numerous side effects that most people are oblivious about. It affects your health, social life and your funds atrociously. Personally, I don't believe in such thing as junk food because the word 'junk' that stands for rubbish can by no means match with food.

To start with, junk food destroys your body from within. It's a silent killer that works its way from the inside out. Sometimes you don't even know that the damage is done until it's too late. Let's take heart diseases for example. Coronary heart diseases are not a joke; they are amongst the most dangerous illnesses in the world. Did you know that more than one third of the deaths in the gulf area are caused by heart diseases? And most of these heart problems are the result of one's consumption of unhealthy food. Furthermore, this type of food is causing one of the major health issues in the UAE. There are approximately 745,940 diabetics in the UAE according to figures published by the International Diabetes Federation. That's almost 8% of Emirati people. This is an alarming figure that needs enormous efforts to be reduced. Adding to that, the potential of organ damage that could be inflicted on the body of a fast food addict is huge. Studies have shown that people who ate fast food twice a day suffered from liver damage in a week. The damage that was inflicted on the liver was similar to that of a regular alcoholic person.

Besides, junk food affects your funds. After the damage is done, people spend fortunes in the attempt of restoring their past selves. They spend thousands of dirhams on cosmetic surgeries to get rid of all the fat within their bodies. In the UAE a liposuction costs from 3000 \$ to 6000 \$! This is outrageous, that amount of money could feed two small families! Most importantly they spend thousands more on medication, health care and doctor fees. The average diabetic spends from 4562.5 \$ to 18250 \$ on insulin shots each year. This money that

they spend on fixing a problem that they could've prevented from the beginning could feed a small village in Africa. Can you believe that?!

Junk food does not only affect your health and funds but it also has immense impacts on your lifestyle. Certain types of junk food contain stimulants that affect your nervous system. These stimulants increase the level of your stress. This type of food is called "pseudostressors" or "sympathomimetics". In the same way, the addiction to ready-made fast food causes the lack of family gatherings. For instance, a person can buy his meal from a restaurant and eats it on his way and thus he won't sit to share a meal with his family around the dinner table. Not to mention that when you suffer from obesity that is caused to you by junk food you will often find a hard time finding trendy and fashionable clothes. Because most fashion designers design clothes in small or medium sizes. That will lead you into having confidence issues which will result in leading yourself into a cocoon of isolation.



Henceforth, nothing good results from consuming junk food. It demolishes your health, life style and harms you financially. You can prevent all that damage by seeking better alternatives in fruits, vegetables and grilled meat. I am positive that regular exercising is a wonderful remedy to consider to help you get rid of this addiction. Eventually, the decision is yours. Whether to risk your life in the favor of savoring junk food or not is up to you. I hope that you make the right decision. Junk food addicts should remember that it's primarily their responsibility to start their journey towards a healthier life.

Appendix L Gifted Student 2 Essay (Draft 2)

Being a body builder is every teenager's dream. Having giant muscles, a big body and being famous. All of these things are important to them because they don't look or think about the bad effects of body building that would destroy everything in their life. In fact, it can destroy their health, social life, and even their school work. It would unfortunately lead them to early death .They can have muscles, but they should not take it more seriously than it should be. I strongly believe that if they took it too seriously it will turn negatively on them.

The teenagers still have growing muscles that are not yet grown enough until they are 18. Working out when they are smaller than 18 would affect their bodies badly because their muscles will shrink and will not grow after that. So you might see short boys with muscles, because also lifting very heavy weights their height is affected and they will no longer get taller. Moreover, it can give them massive injuries. In addition, many bodybuilders sometimes start taking pills which is very dangerous. Not only that, but they also never watch their diets, so they don't know what they are doing to their bodies. Actually, taking some of the pills may be addictive. After being addicted to something, it is very hard to stop it because pills are just like drugs. For this reason the U.S. Food and drug Administration has warned consumers not to take the bodybuilding supplement Venom Hyperdrive 3.0 after discovering it contains a controlled substance that could become addictive.

Additionally, body builders have no social life because all they want to do is staying in the gym working out the whole time to pump their muscles .Therefore, they won't stay with their families. They just come home and eat. But they never eat with their families because their diets are way too different from them. They also have no friends, because they have no time for socializing. They are just lonely. They don't care about anything, they just care about what they do and it destroys their social life. Due to being away, they also don't care about what their families are going through and this is not good at all .Besides that, Bodybuilders are not outgoing people. They don't go anywhere because they don't have time.

Working out affects everything in the body builder's life. It changes every single detail in his life .As far as school is concerned, bodybuilders do not care about studying because all they think about is working out. It will give him poor marks , and he will have no friends at all .Furthermore, he can't eat in the school because the food in there is not the type of food he eats .Food timing is another problem too because they have a schedule of what to eat and when. More than that, the thing a bodybuilder wants is not at school and he can't do it there. He will be really careless and will not study to have marks which would affect his future because body building is something you have to do beside your job, not as a main job.

As was previously stated, this addiction is a very serious problem. Which should be solved. The Emirates BodyBuilding Federation (EBBF) is taking several initiatives to keep the sport clean in the county. Mr. Abdul Karim , a member in EBBF, said "They (bodybuilders) are using a lot of drugs. Our aim now is to clean these people from drugs and steroids .The federation is trying to organize some awareness campaigns to protect teenagers from being addicted to body building. Gyms now are more supervised to avoid anything illegal like drugs. So if they started controlling them from the beginning, no one would dare to do anything because they also know that in our country there is strict punishment for those who break the law. To sum up, body building addiction has so many bad effects. It needs a serious treatment . So as our country cares about their citizens, they are trying to control the problem from its basis to solve it and stop it from spreading .

Appendix M

Non-Gifted Student 1 (Draft1)

Web addiction has become real problem in our modern world. Many people are addicted to the internet. They spend 24 hours in front of their devices like iPad computer and mobile phone. I am sure that this addiction has very bad effect on health, social life and school life.

Firstly The internet affects our health very negatively. For example between 50% and 90% of people who use the internet have at least some symptoms of problems with vision. Also over use of a intranet can effect the brain because the computer enters directly into your eyes and this can cause blindness if not treated immediately

Secondly it affects our school work. Some people believe that But I strongly disagree that the Internet has a positive effect on students by providing a variety of resources for their studies because internet brings some negative effects on students such as internet addicts and the reliance too much on internet with homework. Many students are becoming addicted to the Internet. They spend more and more time playing computer games or just surfing the net without any particular reasons. They generally lose track of time and forget their homework and responsibilities

Finally it is not good for our social life. If you are addected to the internet you will stay the whole time using it. You will not stay with your family. You will not know any thing about them. Your frieds will leave you too because you don't toak to them at all

To sum up, internet is bad for your health. you have to Use the internet on 1 – 3 hours because the intranet are bad and affect your eyes and the brain, try to do athqr staff like swimming going out with your friend and family.

Non-Gifted Student 1 (Draft 2)

Web addiction has become a real problem in our modern world. Many people are addicted to the internet. They spend 24 hours in front of their devices like iPad computer and mobile phone. There is no doubt that that this addiction has very bad effects on health, social life and school life.

Firstly The internet affects our health very negatively. For example between 50% and 90% of people who use the internet have at least some symptoms of problems with vision. Also over use of internet can affect the brain because the computer enters directly into your eyes and this can cause blindness if not treated immediately. Also internet addicts can suffer from depression.

Secondly it affects our school work. I strongly disagree that the Internet has a positive effect on students by providing a variety of resources for their studies But internet brings some negative effects on students such as internet addicts and the reliance too much on internet with homework. Many students are becoming addicted to the Internet. They spend more and more time playing computer games or just surfing the net without any particular reasons. They generally lose track of time and forget their homework and responsibilities

Finally it is not good for our social life. If you are addicted to the internet you will stay the whole time using it. You will not stay with your family. You will not know anything about them. Your friends will leave you too because you don't took to them at all

To sum up, internet is bad for your health. We can solve this by using the internet one-three hours a day because the internet are bad and affect your eyes and your brain, try to do other activity like swimming going out with your friend and family.

Appendix N

Non-Gifted Student 2 (Draft1)

Blackberry addiction

Black berry addiction is becoming big problem in the whole world. Fourteen per cent of smartphone sales is for BlackBerry. Researchers discovered that about a third of BlackBerry users show signs of addiction that are like addiction to alcoholism. So, this addiction can cause many problems like isolation, uncontrolled behavior and can be a waste of time.

First, Blackberry addiction can cause isolation. Today BlackBerrys have become the teenager's best friend because it looks "cool" and young people have no more time to meet with friends. Also, families go out together but do not speak to each other, they are all the time busy with their blackberries.

Second, blackberry addiction can be an uncontrolled behavior. People focus on their phones ignoring those around them. Some people come back home from a long travel and open their blackberry before speaking to their family. Some other people try to find ways to drive and read text messages.

-third, I think that blackberry addiction can waste of time. It's all about jokes and rumors and stupid thing. In the class the teacher is explaining while the students are chatting using their phones or also cheating.

So, blackberry addiction is bad for our live. It can make us feel lonely. It can be dangerous and it can waste our time.

Non-Gifted Student 2 (Draft 2)

Blackberry addiction

Black berry addiction is becoming a big problem in the whole world. Fourteen per cent of smartphone sales is for BlackBerry. Researchers discovered that about a third of BlackBerry users show signs of addiction that are like addiction to alcoholism. So, I think that this addiction is very bad and can cause many problems like isolation, uncontrolled behavior and can be a waste of time.

First, Blackberry addiction can cause isolation. Today BlackBerrys have become the teenager's best friend because it looks "cool" and young people have no more time to meet with friends. Also, families go out together but do not speak to each other, they are all the time busy with their blackberries.

Second, blackberry addiction can be an uncontrolled behavior. People focus on their phones ignoring those around them. Some people come back home from a long travel and open their blackberry before speaking to their family. Some other people try to find ways to drive and read text messages.

-Third, I think that blackberry addiction can waste of time. It is all about jokes and rumors and stupid thing. In the class the teacher is explaining while the students are chatting using their phones or also cheating. We cannot accept this!

So, blackberry addiction is bad for our live. It can make us feel lonely. It can be dangerous and it can waste our time. If we don't find a solution, it will ruin our life.