PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

UNIVERSITY OF MOSTAGANEM
FACULTY OF FOREIGN LANGUAGES
DEPARTMENT OF ENGLISH

Enhancing Critical Thinking through Project Work: The Case of Algerian Secondary School English Language Classes

A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Doctorate in Applied Linguistics

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Academic Year : 2019 – 2020

DEDICATION

I dedicate this work to those who have enlightened my path and made me feel energized, motivated and active.

To my beloved father

To my dear mother

To my brothers Yassine

And Habibou

EULOGY

In Memory of Dr Bel Abbés Neddar

It is with great sadness and sorrow that I pay tribute to Dr Neddar, who was our teacher for a few years in reality but forever in our hearts. His dedication and perseverance were the key elements in a combination that have led us to masterful achievement.

Very intuitive, he knew how to deal with students, capture their attention, and interest them by taking into account their differences and abilities to learn. He was always listening to them in order to help them overcome their difficulties, and he had always sought to adapt his teaching methods according to his students' profiles.

Obviously, a few students found him too demanding and strict at times, but looking back, I know they are grateful to him, and I know they owe him a lot.

Finally, I would like to say that Dr Neddar and we had the chance to meet.

With a mixture of grief and wounded pride, I will pray and ask the Almighty to Bless Him Now and Forever.

AMEN

ACKNOWLEDGMENTS

First and foremost I thank Allah the Almighty for illuminating my path, opening the doors of knowledge and providing me with patience and will.

I would like to express my in-depth gratitude to my supervisor and former teacher, Dr El Ouchdi Ilham Zoubida, for her worthy guidance, support, advice and inspirational leadership all along the preparation of the present thesis. Her psycholinguistics lessons inspired me to choose this field of research. I thank her for being such a wonderful teacher and supervisor.

I extend my deep gratitude to the honourable jury members Prof. Benneghrouzi Fatima Zohra, Dr Sarnou Hanane and Prof. Benmansour Radia for kindly having accepted to evaluate my work and provide me with invaluable constructive comments.

I am so thankful to my beloved father, Baghoussi Khalid, for offering me his editing expertise and proofreading the work. I am also forever indebted to him for his priceless advice during the preparation process of this work. Without his encouragements, this research would have never been accomplished. Thank you for being there for me all along with my life; I will forever be grateful to you.

Special thanks are owed to Prof. Bahous Abbes for his enchanted encouragements that have boosted my self-confidence and allowed me to overcome the encountered difficulties. I am also grateful to him for his invaluable advice and comments.

I also owe many thanks to Mr. Louznadji Mustapha and Dr Benabed Ammar for their inspirational encouragements and insightful guidance and help.

My deep appreciation goes to Mr. Fettouche Ali and Mr. Slimani Amine, Inspectors of National Education in Tlemcen and Oran, and all the secondary-school teachers and learners who actively participated in the fieldwork and the experimentation done in schools.

Special words of gratitude go to my mother, Hafida Benabdelouahed, who was also my primary-school teacher, for making me who I am today. I cannot thank her enough for her endless love, patience, sense of sacrifice and prayers.

I am also deeply grateful to Dr Sofiane Lakel for his constant support and Imen Hamdi, Othman Chaouki, teachers of English from Tunisia and China, for their priceless help and constant inspiration.

Last but not least, I would like to place on record my sincere gratitude to my friends Berrarbi Amina, Hamidi Badra, Bouattou Sarah and Karrakech Fatima for their moral support and unceasing encouragements.

ABSTRACT

Educational institutions all around the world are presently concerned by the introduction of critical thinking and project pedagogy into education. The Algerian educational system is not exempt from that global concern. The evidence, in this case, is clearly stated in the first, second and third-year secondary school English syllabuses. All of them stipulate that English teaching involves the acquisition of linguistic and communicative competencies and the development of a critical mind (MNE, 2006a, 2005c & d). In this context, the present study aims to examine the extent of implementation of project work pedagogy for the enhancement of critical thinking in the secondary-school English classes as recommended by the Ministry of National Education and to explore the role of the third-year secondary school syllabus, the accompanying document and the textbook in nurturing critical thinking. It also investigates whether the current classroom practices embrace a diverse range of active learning and problem-solving strategies and tasks that increase learners' involvement in high-quality discussions and develop their critical thinking skills. For the collection of data, the study has employed a mixed methods research approach in which a variety of data collection tools were used and directed to only a sample of research subjects so as to narrow the scope of the study: (a) questionnaires were handed both to third-year English teachers to identify their attitudes towards critical thinking and project work and to learners to investigate their opinions on English class projects; (b) classroom observation sessions were organized to observe the classroom practices; (c) a sample experiment was conducted to identify the impact of project work in fostering critical thinking; and (d) a sample analysis of the third-year English textbook and syllabus was done to find out whether they embed the core principles of project-based pedagogy and critical thinking. The results of the data analysis of the above-mentioned tools revealed that EFL teachers were reasonably knowledgeable but lacked professional development training on classroom practices, and EFL learners were interested but not motivated to do projects because of inadequate classroom practices such as the lack of active learning strategies and the predominance of the teacher-centredness approach in classrooms. Within this context, the study highlights the importance of project work in fostering and enhancing critical thinking by using the syllabus and the textbook, which are substantially project based. If they were used methodically, they could help teachers implement the Project-Based Learning approach properly and thus enhance learners' critical thinking. To that end, and since this research is evidence-based rather than content-based, its implications could be generalized to benefit teachers and policymakers and thus help our learners to enhance their higher-order skills and be critical thinkers capable of overcoming the 21st-century challenges to succeed not only in the workplace but also in life.

***Keywords*:** Project-Based Learning, project work, critical thinking, active learning

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ABREVIATIONS AND ACRONYMS

AEF: Algerian English Framework

APA: American Philosophical Association

AS: Année Secondaire

BIE: Buck Institute for Education

CALL: Computer Assisted Language Learning

CBA: Competency Based Approach

CLT: Communicative Language Teaching

CT: Critical Thinking

EFL: English as a Foreign Language

ELT: English Language Teaching

EXL: Experiential Learning

GE: Gestion Economie (Management and Economy)

GTM: Grammar Translation Method

H: How

HOTS: Higher-Order Thinking Skills

FIO: Final Integration Objective

FL: Foreign Languages

FLS: Foreign Languages Stream

FL1: First Foreign Language

FL2: Second Foreign Language

IOI: Intermediate Objective of Integration

IQ: Intelligence Quotient

KWL: What I Know, What I Want to Know, What I Learnt

LCT: Learner Centred Teaching

LLE: Lettres et Langues Etrangères (Letters and Foreign Languages)

LOTS: Lower-Order Thinking Skills

LPH: Lettres et Philosophie (Letters and Philosophy)

LS: Literary Stream

M: Mathématiques (Mathematics)

MCQ: Multiple Choice Questions

MKO: More Knowledgeable Other

MNE: Ministry of National Education

MT: Mother Tongue

Nb. St.: Number of Students

Nb. Ts.: Number of Teachers

NEA: National Education Association

OTI: Objectif Terminal d'Intégration

PBA: Project-Based Approach

PBL: Project-Based Learning

PES: Professeur de l'Enseignement Secondaire

PW: Project work

P21: Partnership for 21st Century Skills

ReQuest : Reciprocal Questioning

SBI: Strategy-Based Instruction

SC: Sciences

SEEP: Secondary Education Exit Profile

SE1: Secondary Education, 1st Year

SE2: Secondary Education, 2nd Year

SE3: Secondary Education, 3rd Year

SS: Scientific Stream

STT: Students Talking Time

TCT: Teacher Centred Teaching

TM: Technique Mathématique (Technique and Mathematics)

TOI: Terminal Objective of Integration

TPS: Think Pair Share

TTT: Teacher Talking Time

TPD: Teacher Professional Development

WHs: What, When, Why

ZPD: Zone of Proximal Development

General Introduction

GENERAL INTRODUCTION

The quality of our life depends a lot on the quality of our thinking. Human beings have extraordinary cognitive abilities that allow them to think; however, not all thinking leads to successful outcomes. In this case, possessing the ability to think critically helps individuals to analyse and evaluate their thoughts to produce more pertinent and effective ones. Therefore, to succeed in the 21st century, our learners should possess not only the ability to think critically, analytically and creatively but also the aptitude for communicating effectively and collaborating well with others. To reach that aim and help our learners develop such skills and be able to face the modern world challenges, the Algerian Ministry of National Education (MNE) went through some reforms that highlighted the importance of those skills and English as a universal language.

Before 1962, French was vigorously implemented while Arabic has been a significant force in education and politics in the past few decades. In 2002, the MNE assigned the status of the second foreign language to English, and it was introduced first into middle schools. Since its emergence, it has become an essential part of the national syllabus, and it is in high demand in all levels of education. A variety of private language schools have been established throughout the country, though some suffer from a lack of English teaching materials and fluent speakers. The significant goals behind teaching English or any other foreign languages in Algeria are to get access to modern, scientific and technological fields and to communicate with all the people of the world in order to consolidate the international political, cultural and economic relations. In this context, the third year syllabus (2006) states that the aim of teaching English is to help our society integrate harmoniously into modernity by participating fully and entirely in the linguistic community that uses this language for all types of interaction. This contribution, which is based on sharing and exchanging scientific and cultural ideas and experiences, should allow a better understanding of oneself and others. Therefore, the Algerian learners would overcome the narrow conception of learning languages structurally and move towards a more appropriate approach which helps them to develop not only their linguistic and communicative competences but also their cross-curricular competencies, namely critical thinking (CT), problem-solving, teamwork, collaboration and information-technology application. In such context, they will no longer be recipients, but rather actors and real agents of change for whom science, technology, and culture will all be accessible while avoiding the pitfall of acculturation.

To be up-to-date with the recent researches done in the education field, the MNE has opted for the implementation of the Competency-Based Approach (CBA) and thus shifts from

a time-based educational system to a system based on competencies that are acquired during the teaching, learning and practising processes. Within the CBA, learners are no more regarded as passive recipients, or 'empty vessels' waiting for the teacher to pour knowledge into them and ask them to memorize and reproduce it in-vitro. Instead, they are urged to be actively involved in the process of learning. This view demonstrates a new interpretation of the teaching-learning paradigm. Eventually, it embodies a shift in focus away from the teacher's responsibility for disseminating knowledge towards learners who are at the centre of the learning process and who seek to create their own understanding of the world of language surrounding them.

The last reform introduced in the Algerian educational system in 2002 resulted in designing new syllabi and textbooks at different educational levels. The official documents are based upon the CBA principles. This new learner-oriented approach focuses on the expansion of learners' autonomy and self-development by establishing affirmation for the essentiality to redefine the roles of both the learner and the teacher; hence, the argument for the acceptance of a methodology is centred on the learner. The Algerian English Framework for the three levels of secondary education has been organized around competencies that require active and critical thinking about the issue of problem-solving. The latter lies at the heart of Project-Based Learning (PBL), which is itself a paramount constituent in the learning process since it allows learners to reinvest and personalize their learning process. Moving away from rote learning and memorization, PBL helps learners to develop 21st-century skills such as critical thinking, creative thinking, problem-solving, communication and collaboration, which allow them to move from theory to practice. PBL proponents state that the project methodology is not "a replacement for other teaching methods", but it is rather "an approach to learning which complements mainstream methods and which can be used with almost all levels, ages and abilities of students" (Haines,1989, p.1) in Richards and Renandya, 2002, p.109). Three decades ago, PBL was suggested as a way to reflect the principles of learner-centred teaching. More recently, it has been proclaimed as an appropriate approach to teaching English as a second or foreign language. Positively, as the English language teaching profession has come to approve the principles of a learner-centredness approach, English language teachers have started exploiting the tradition of project work modestly.

The education aim is to teach people to think, and more than that, it "is the acquisition of the art of the utilization of knowledge" (Whitehead, 1967, p.4). Besides, effective educational practices enable learners to develop their thinking skills (basic and metacognitive)

which, in turn, will not only help them to acquire, evaluate and produce knowledge autonomously but also lead them to the "evocation of curiosity, of judgment, of the power of mastering a complicated tangle of circumstances" (Whitehead, 1967, p.5). To help learners dig deeper into problematic issues and find solutions, teachers can use countless critical thinking and problem solving strategies relatively simple and accessible in the classroom to help learners develop their thinking skills. Critical thinking includes the fundamental skills that help to use the inductive and deductive reasoning to make inferences, analyse arguments, judge and evaluate, make decisions and solve problems. Background knowledge is a compulsory but not an adequate condition for enabling critical thought within a particular subject. Both cognitive skills and dispositions are involved in critical thinking. These dispositions include open- and fair-mindedness, inquisitiveness, flexibility, a propensity to search for reason, a desire to be well informed, and a respect for and willingness to entertain diverse perspectives. Experiential research suggests that people start developing critical thinking competencies at a very young age. Though adults often reveal deficient reasoning, in theory, all people can be taught to think critically.

Critical thinking has become necessary and highly valued in almost all fields, including teaching. Hence, teachers are recommended to go with the flow and adjust their teaching methodology accordingly. They need to adopt a critical thinking-based instruction, in other words, place learners at the centre of the learning process through teaching them how to transfer previously learnt knowledge to novel situations, and to solve problems by using constructivist approaches and cooperative or collaborative learning methods. The importance of critical thinking skills as an outcome of learners' learning has long been the main concern of educators. Fisher (2011, p.1) states that the enhancement of learners' abilities for critical thinking is considered as a central goal of education. In 2002, for example, the National Education Association (NEA) and the Partnership for 21st Century Skills association (P21) developed a "Framework for 21st Century Learning" in which they highlighted the primary 21st Century Skills, namely the "Four Cs": Critical Thinking, Communication, Collaboration, and Creativity. According to them, critical thinking is one of several learning and innovation skills necessary to prepare learners for the post-secondary education and the workforce. At the Buck Institute for Education (BIE), they believe that learning through projects is a powerful pedagogy that helps learners to learn how to think, in other words, to learn how to be critical thinkers and decisions makers. For this to occur, the instructional emphasis should be on the learning process, and thus on how the learners will get the information and how that

information will be analysed, synthesized, and evaluated in order to get the final product. To help learners, teachers need to adjust their instruction and assign them projects which embed pertinent topics that lead to attentive thought. Additionally, learners have to be afforded with appropriate tasks, support and scaffolds required to build up the critical thinking tools and strategies.

To that end, the overall aim of the present thesis is to investigate whether the project work pedagogy is implemented in the third-year secondary school English classes as recommended by the syllabus and the accompanying document and if learners' critical thinking is enhanced thanks to teachers' classroom practices. For more details about the aims of the investigation, the researcher will attempt to:

a) Determine the extent of project work pedagogy implementation for enhancing critical thinking in third-year secondary school English classes.
b) Explore whether teaching materials and strategies nurture critical thinking.
c) Highlight the importance of project work pedagogy in enhancing critical thinking.

The following questions are to be addressed to reach the aims mentioned above:

1. How conducive are the third-year EFL secondary school syllabus, accompanying document and *New Prospect* textbook to the implementation of the project work pedagogy?
2. To what extent do EFL secondary school teachers' attitudes and classroom practices contribute to the development of learners' critical thinking?
3. What attitudes and degree of motivation do third-year EFL secondary school learners have towards learning and doing projects in English?
4. How could the project work pedagogy develop learners' critical thinking skills?

To achieve the aim of the study, the researcher put forward four hypotheses:

1. The third-year EFL secondary school syllabus, accompanying document and *New Prospect* textbook include and recommend the project-based pedagogy.
2. EFL secondary school teachers' attitudes and classroom practices significantly hinder the development of learners' critical thinking skills.
3. Third-year EFL secondary school learners are interested in learning English and doing projects, but they are not motivated.
4. If it is well-implemented, the project work pedagogy will help learners enhance their critical thinking skills.

GENERAL INTRODUCTION

The present study significantly foregrounds the attempts done by teachers to help learners learn; however, the obstacles teachers encounter in the field stand as a barrier to progress and development. Those obstacles were cited in the teachers' questionnaires and most of them were related to classrooms crowdedness, the length of the programme and lack of professional training, namely workshops, seminars, mentors' visits and peer-to-peer classroom observation sessions. However, the information gathered within this research could raise teachers' awareness about the importance of developing learners' skills to help them succeed at school and in the workplace. They could also have a clear idea about the necessity of project work and its role in fostering critical thinking, encouraging collaboration, learner centredness and autonomy, developing motivation, creativity and communication. Those skills have been intensely discussed within this study, and the focus has been put on the enhancement of critical thinking, a fundamental 21st-century skill needed "to deal effectively with social, scientific, and practical problems" (Shakirova, 2007, p.42).

Furthermore, the fact that the present study lays particular stress on the necessity of encouraging learner-centredness to raise learners' autonomy could help teachers to reduce the *tremendous exhaustive efforts* they make in class to provide learners' with ready-made knowledge through everlasting explanations. Such classroom practice is not always fruitful because it promotes rote memorization, i.e. temporary knowledge, and it does not encourage critical thinking, which in turn will inhibit communication among learners who could become passive listeners. In this context, it is worth noting that "those who have the ability to hear, do not always actively listen (and) those who have the ability to know, do not always critically think" (Snyder & Snyder, 2008, p.91).

For the sake of validity of the hypotheses mentioned above, this research is not limited to a specific region, but it includes three provinces, namely Mostaganem, Oran and Tlemcen. To collect data and address the questions raised within this research, the present study has employed a mixed methods research methodology, and several research tools were used to collect and analyse data. The teachers' questionnaire (see Appendix A) aims at collecting data about teaching theories and classroom practices. The learners' questionnaire (see Appendix B) investigates learners' interest in learning English and their attitudes towards project work and classroom practices. Another tool, classroom observation, was used to collect data on teachers' practices and learners' responses to their teachers' instructions. The last tool, the pre-post test (see Appendix C), aims at measuring the impact of project pedagogy on learners' critical thinking enhancement.

To narrow the research scope, a sample of subjects, namely the third-year secondary school English teachers and learners were selected for the present study. Hence this sample can be considered as a miniature picture of the entire population of teachers and learners. Besides, the third-year learners are supposed to hold the Secondary Education Exit Profile (SEEP), referred to as the OTI (Objectif Terminal d'Intégration) in the syllabus. This profile, if attained, the learner will be equipped with the three competences, namely interaction, interpretation and production. It is worth noting that those competencies have been aimed at since middle school. Also the sample of third-year teachers chosen could possibly represent the whole population since most of them teach different levels and, therefore, the same teaching approach is duplicated within the other levels.

As for the present thesis structure, it subsumes a general introduction where the layout and the research work content are introduced in five chapters. The first two chapters embed the theoretical underpinnings of the research subject, the third one encloses the research methodology and the fourth chapter enfolds the interpretation and discussion of the research findings. The last chapter includes some recommendations and suggestions concerning the enhancement of learners' critical thinking.

For more details, the **first chapter** discusses the theoretical background of critical thinking. Its various definitions are mentioned and compared. To be able to trace critical thinking genesis, Bloom and Paul Elder's works on critical thinking are deeply discussed within this chapter. How the critical thought developed through time from the Socrates era to the 21st century is also addressed. Moreover, critical thinking relationships with other concepts are highlighted as well.

Additionally, the **second chapter** introduces the start point of PBL: John Dewey's era. Since the Algerian curriculum is based on CBA, the relationship between the latter and PBL is obviously stressed. Also, the methodology, the components and the tools embracing PBL are discussed in detail.

Chapter three gives an overview of the employed research methodology and itemises the different steps taken to conduct it. The syllabus and the English textbooks are analysed; the research tools, namely the teachers' and learners' questionnaires, the syllabus and the textbook checklist, the classroom observation and the pre and post-test are also cited.

The **fourth chapter** reports the data gathered thanks to the instruments mentioned above. It also provides the results of the data and a detailed interpretation and discussion of the results.

To give credibility to the research, the **fifth chapter** proposes a number of recommendations and suggestions to teachers and stakeholders to prepare for the implementation of critical thinking pedagogy in English classes. The recommendations focus is mainly put on the preparation of teachers for the critical thinking instruction through professional development training programmes. The chapter also suggests some instructional approaches and active learning strategies that help to implement and foster critical thinking among learners.

Chapter One

Critical Thinking Theoretical Background

Chapter I. Critical Thinking Theoretical Background

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1.1. Introduction

"The function of education [...] *is to teach one to think intensively and to think critically* [...]*"*

Martin Luther King Jr.

Educationalists have long been conscious of the significance of critical thinking skills in education as a product of learners' learning. More particularly, it is assumed that the flourishing integration of those skills in the teaching of English as a second or a foreign language has a vital role. This assumption relies on the hypothesis that there is synchronisation between knowledge and thinking and between language learning and cognitive processes. Critical thinking has been acknowledged as one of the various learning and innovation skills required to train learners for post-secondary education and the workforce. Regardless of the pervasive acknowledgement of its importance, there is a noteworthy lack of agreement vis-à-vis the definition of critical thinking. The purposes of this first chapter are: (a) to investigate the different definitions of critical thinking provided by researchers, (b) to examine the development of critical thinking and (c) to explore the relation of critical thinking to other concepts.

1.2. Critical Thinking Terminology

Though critical thinking has been considered as vastly essential, its accurate significance and educational inferences remain vague. In the literature, several definitions of critical thinking have been employed correspondingly with other types of thinking, such as reflective thinking, critical analysis, rational thinking, and higher-order thinking.

1.2.1. "Critical" and "Critical Thinking" Concepts

"Critical" is a real significant term; however, in instruction, it might be seen as a challenging idea. "Critical" has various implications since the ideas, hypotheses and practices of that term are developed in unique ways, and perspectives differ extraordinarily among vested parties, especially in the instructive/educational vogue. Being critical appears to be different from being honest, naive, superficial or noncritical. It is not astonishing, however, to see teachers supporting learners' critical thinking within their classrooms. Related terms like criticism, criticize and critique imply judging, contrasting and assessing through a vigilant examination so that a critical direction requires both the component of assessment and judgment and also close awareness of the item being assessed. As nobody can think for others, or without others (Freire, 1972) and "no one can tell another person in any definite way how he *should* think, any more than how he ought to breathe or to have his blood circulate" (Dewey, 1933,

p.3), the manner how to initiate critical thinking at all levels involves essential consideration towards teachers.

1.2.2. Origins and Definitions

"Ultimately, it is not we who define thinking, it is thinking that defines us."

—Carey, Foltz, & Allan (1983) cited in Halpern (2014, p.7).

A growing number of studies in the educational context focus on both critical thinking and the most successful and suitable framework in order to promote critical thinking skills. Critical thinking has been defined in various ways. As far as the existing definitions are concerned, the present paper incorporates some of them to allow having different standpoints on the notion mentioned above.

Researchers, philosophers and psychologists differ on their constructions of their understanding and agreement of critical thinking as a concept (McCarthy, 2004). For some theoreticians and scholars, the terms "critical thinking", "higher-order thinking" and "problem-solving" can be used interchangeably. In contrast, others characterise critical thinking as a form of higher-order thinking or problem-solving. Some of the definitions often stress the cognitive and meta-cognitive elements of critical thinking and define it as "thinking about your thinking while you're thinking to make your thinking better" (Paul, 1993, p.91). For Crowl et al. (1997), critical thinking is a crucial factor in metacognitive processes. More intentionally, it is also considered as a skill of a human mind containing 'stages', ' aspects', or 'phases'. Others consider critical thinking as 'the habits of mind' or as personal/academic attitudes. Respectively, Elder and Paul (1994) state that critical thinking means thinkers take charge of their own thinking.

Moreover, people develop conditions and criteria to analyse, assess and develop the quality of their own thinking (Uden & Beaumont, 2006). From another point of view, other studies provide a lucid definition of critical thinking skills and consider it as a human phenomenon. Halpern (1996) defines critical thinking as the "thinking that is purposeful, reasoned, and goal directed - the kind of thinking involved in solving problems, formulating inferences, calculating likelihoods, and making decisions" (p.5).

For years, critical thinking has been the interest of many people who have been looking for ways and methods to teach it. Critical thinking, as a term, was firstly introduced by the Greek philosophers – from Socrates era supported by Plato and then implemented by Descartes (Rfaner, 2006). In a way, the classic Athenian philosopher Socrates, who is often regarded as

the founder of western philosophy, started this approach to learning over 2,500 years ago. He noticed that his learners lost the ability to rationalise their own predetermined thoughts and beliefs after being asked precise and targeted questions.

On the one hand, throughout suitable and repetitive questioning, Socrates observed that those same learners, in the end, enlarged self-generated knowledge and had the capability to standardise and control their own thoughts. The art of Socratic questioning illustrates three kinds of questions, which are characterised as those of procedure, preference, and judgment. When the questioner uses these types purposefully, it can help learners in regulating and fixing their thoughts.

On the other hand, John Dewey, the American philosopher, psychologist and educationist who is commonly regarded as the father of the modern critical thinking approach, added some clarifications. In his book, *How We Think* (1933), he puts stress on the correlation between critical thinking and experiential learning. Many researchers and authors have quoted Dewey's crucial concept of critical thinking in their works. Dewey used the term "Reflective Thinking" to mean critical thinking, and he defines it as an "active, persistent and careful consideration of a belief or supposed form of knowledge in the light of the grounds that support it and the further conclusions to which it tends" (Dewey, 1933, p. 6). He also points out that the fundamental purpose of education is learning to think.

Furthermore, according to Scriven (1985), "training in critical thinking should be the primary task of education" (p.11). Most of the theorists use critical thinking and reflective thinking interchangeably. However, Ennis (1985) relates critical thinking to reason. According to him, critical thinking means "reasonable reflective thinking that is focused on deciding what to believe or do" (1991b, p.6). In addition to the perceptions mentioned above, other views on critical thinking appeared. Lewis & Smith (1993) think that the literature on critical thinking has its roots in two other primary academic disciplines: philosophy and psychology. Moon (2008) also noted that the main aim of educators is to focus on the process of transforming learners into critical thinkers rather than on the process or the skill itself.

According to Benderson (1990), Lewis and Smith (1993), these perceptions are fundamentally dissimilar. Philosophers put emphasis on critical thinking; whereas, psychologists focus more on the notion of "thinking skills". Since the nature and the quality of the products of critical thinking are the focal points of philosophers, psychologists focus more on the cognition process, the components and actions used to address academic and practical issues (Reed, 1998).

Besides, cognitive and developmental psychology is based on experiential research. Conversely, philosophy focuses on hypothesising and rational interpretations in order to accomplish conclusions. In this context, Halonen (1995) states that "critical thinking scholarship is in a mystified state" (p.75), and Fasko (2003) asserts that "there is no consensus on a definition of critical thinking" (p.8).

It is generally acknowledged that critical thinking is not innate but acquired. It forms a sort of intelligence, which learners do not automatically or naturally hold. It is a skill that can be taught in the classroom which implies that skills are not likely to grow impulsively, but they should instead be initiated and guided by teachers since they are regarded as "learnable skills" (Bean, 1996, p.4). In this instance, Jones (1996) asserts that "critical thinking is a learnable skill with teachers and peers serving as resources."

Moore & Stanley (2009) state that critical thinking is a process that allows learners to think and reflect on the world for themselves. According to them, it is not sufficient to tell 'when' something happened and 'who' was the doer, but rather be able to say 'why' it happened and 'how' it affected people, society, the world or history. They also state that before learners can realize and accomplish the higher levels of Bloom's taxonomy, namely analysing, evaluation and creating, they need first to understand the three lower levels, i.e. remembering, understanding and applying. In order to promote and enhance higher-critical thinking levels, teachers need to be familiar with how to ask questions and assess responses using those different levels.

To engage learners in the thinking-learning process, teachers are also urged to use and implement adequate strategies and techniques because learners have great perspective and potential to construct and analyse information. Paul & Elder (2001) agree that "critical thinking is that mode of thinking - about any subject, content, or problem - in which the thinker improves the quality of his or her thinking by skilfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them."

Price (2004) also looks at it as "analytical and strategic, linking knowledge bases to practice strategies" (p.47). Ennis (1962) and Halpern (1997) agree on the fact that the more critical thinking is practised, the more it can be used in various contexts; the more learners understand better the theory and its application on the fields (Halpern 1999). In this context, Fisher & Scriven (1997) state that "critical thinking is skilled and active interpretation and evaluation of observations and communications, information and argumentation" (p.20).

So for many theorists, critical thinking is considered as a multi-dimensional skill, which we need to acquire and practice in order to perform better. Furthermore, critical thinking is described by D'Angelo (1971) as "a process of evaluating statements, arguments, and experiences". So both Scriven and D'Angelo's descriptions of critical thinking put the focus on the evaluation of the diversity of elements and things people experience and which are life-long processes. Besides, Paul et al. (1989) have developed a list of micro-skills and dimensions that describe the critical thought process. Below is a summarized version of those dimensions:

1. The affective strategies comprise independent thinking, the development of insight into egocentricity or sociocentricity, the exercising of fair-mindedness, the exploration of thoughts that underline feelings and feelings that underline thoughts, the development of intellectual humility and the suspension of judgment and the development of intellectual courage, good faith or integrity, perseverance and confidence in reason.
2. The cognitive strategies-macro-abilities include the process of refining generalisations and avoiding oversimplifications, comparing analogous situations, i.e. transferring insights to new contexts, developing one's perspective, i.e. creating or exploring beliefs, arguments, or theories and the process of the clarification of issues, conclusions or beliefs. The meaning of words or phrases is also clarified and analysed. In addition, the development of criteria for evaluation helps to clarify values and standards.
3. The cognitive strategies-micro-skills embed the comparison and contrast of ideals with actual practice, the process of thinking precisely about thinking, i.e. using critical vocabulary, the consideration of significant similarities and differences and the examination or evaluation of assumptions.

Schumm and Post (1997) suggested some characteristics that are displayed by critical readers. They have to base their judgments on evidence, ask penetrating questions and evaluate ideas, distinguish between opinions and facts, and reflect on their ideas.

Matthew Lipman, Robert Sternberg, and Robert Ennis are among the most prominent scholars who have contributed to the discussion of the issue of critical thinking. Lipman started his work on critical thinking in the late 1960s when he noticed that children were not using reason when they are faced to problem-solving tasks. His focus is based on the belief that there is dissimilarity between everyday or ordinary thinking and critical thinking. Conventional thinking is simple, uncomplicated and standards-free. However, the principles of objectivity, difficulty, effectiveness or reliability are the characteristics of critical thinking. The latter, for Lipman, does not incorporate merely the cognitive processes which are used in problem-solving

or decision-making, but it entails "skilful, responsible thinking that facilitates good judgment because it (a) relies upon criteria, (b) is self-correcting, and (c) is sensitive to context" (Lipman, 1988, p.3).

Paul and Elder (2020) enlarged the Paul-Elder model of critical thinking, which contains nine universal intellectual standards: clarity, accuracy, relevance, logicalness, breadth, precision, significance, fairness, and depth. Those standards are used with eight elements of thought: purposes, questions, points of view, information, inferences, concepts, implications, and assumptions. That combination leads to the development of intellectual traits of virtues like humility, autonomy, integrity, courage, perseverance, empathy, confidence in reason, and fair-mindedness. Similarly, many scholars have introduced many definitions of the notion of critical thinking; most of them tend to be analogous in content.

1.3. Paul's Model of Critical Thinking

Over so many years, Richard Paul's model of critical thinking (1989) has advanced and it is still developing. His classification of critical thinking provides awareness of his foundation beliefs of education and holds an essential dissimilarity between two types of critical thinking. Paul (1989) claims that:

> Critical thinking is disciplined self-directed thinking which exemplifies the perfections of thinking appropriate to a particular mode or domain of thinking. It comes in two forms. If the thinking is disciplined to serve the interests of a particular individual or group, to the exclusion of other relevant persons and groups, I call it *sophistic* or *weak sense* critical thinking. If the thinking is disciplined to take into account the interests of diverse people or groups, I call it *fair-minded* or strong sense critical thinking (p.278).

Three categories are presented in the revisited version of Paul's 2008 model:

1. Elements of thought or elements of reasoning;
2. Standards of critical thinking;
3. Intellectual traits or virtues.

What is vital to critical thinking is determined in the first two elements, whereas the last element focuses on the characteristics of a critical thinker.

I.3.1. Elements of Thought

For Paul, this element is an essential part of human thought. He presents eight elements which are always there in human thinking and that the capacity to distinguish them is crucial in critical thinking. They are presented as follows:

1. *Purpose*
   - The individual goal, objective, what s/he is trying to achieve or to accomplish.
   - Why the work is being enlarged.
2. *Key Question*
   - Each time an individual is rational throughout something, s/he strives to respond to some questions or tackle some dilemma.
   - What is the main problem s/he is attempting to present or address?
3. *Information*
   - This element incorporates the facts, data, or knowledge used to build things. It involves both the information an individual has and the information s/he does not have, but s/he needs.
   - What data an individual needs to respond to the issue.
4. *Concepts*
   - To make sense of things, theories, principles, or hypothesis are needed in thinking;
   - To choose the information needed to apply and settle the problem;
   - What concepts an individual uses to settle the problem.
5. *Assumptions*
   - They are the convictions and principles that an individual takes for granted, which are clear and justified by proof;
   - What is the assumption guiding this conclusion?
6. *Implications and Consequences*
   - They are claims or facts that rationally pursue to other arguments or facts;
   - Implications have to do with thoughts; whereas, consequences have to do with actions;
   - What is likely to happen if some decisions have been taken?
7. *Point of View*
   - To reason throughout something, an individual needs some opinions;
   - What is her/his opinion?
8. *Interpretations and Conclusions*
   - Judgments that allow an individual to know if s/he has been successful;
   - An individual need to look for both negative and positive implications;
   - All possible results are suggested.

For Paul and Elder (2020), these elements of thought are interconnected. In this context, they claim:

> Whenever we think, we think for a purpose within a point of view based on assumptions that lead to implications and consequences. We use concepts, ideas, and theories to interpret data, facts, and experiences in order to answer questions, solve problems, and resolve issues (p.14).

According to them, each element of thought plays a crucial role in the thinking process. The following figure summarizes those roles:

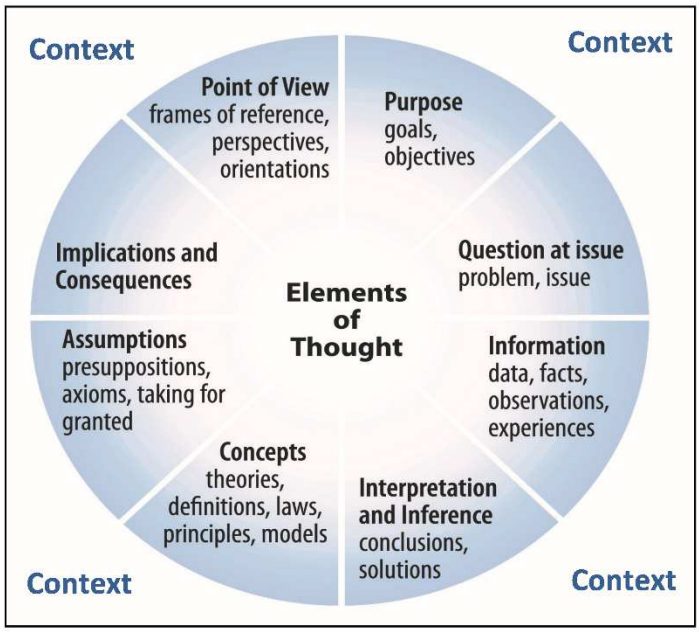

Figure 1.1. Elements of Thought (Paul & Elder, 2020)

I.3.2. Standards of Critical Thinking

Paul and Elder suggest some criteria based on standards used by critical thinkers who should apply them to their own thinking. Those standards are clarity, precision, accuracy, relevance, logicalness, depth, completeness, significance, breadth and fairness. Those are a challenge to recognise what represents the valued factor of critical thinking and are also considered as essential standards to reasoning. Hence, increasing the mastery of those elements of thought and the standards of critical thinking make individuals use reasoning well.

I.3.3. Intellectual Traits or Virtues

The last element of Paul and Elder's model is based on the nature of the critical thinker, named by them as “Fair-minded” critical thinker. Several traits are presented by Paul and Elder

(2020), which they consider as essential elements for individuals to embody in order to become 'ethical critical reasoners' (p.23). These traits are introduced in the following figure:

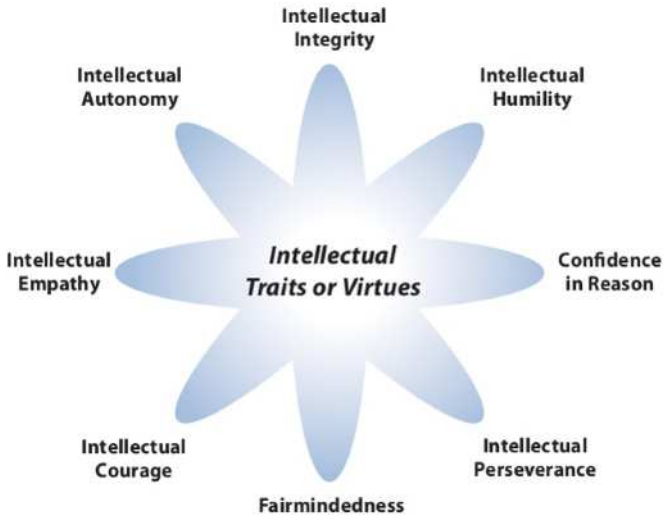

Figure 1.2. Intellectual Traits or Virtues (Paul & Elder, 2020)

Paul (1992) calls these "traits of the disciplined mind", the affective and moral aspects of critical thinking. He also suggested several ways for teachers to stimulate these traits of the mind. In order to do this effectively, he favours a reconsideration of the nature of both the teaching and learning in schools and universities, promoting a critical-based theory instead of an informative-based approach. In order to be a critical thinker, society needs to make the significance of those essential categories of thinking. Paul's model of critical thinking is based on both cognitive and affective factors. He is conscious of the significance of the sensitivity to the conditions in which thinking happens. Even though Paul did not mention the word 'metacognition', but it is recognised implicitly through his stress on reflection and self-awareness.

Nosich (2000) thinks that since Paul's model of critical thinking does not embed strict rules, actions or specific and restrictive stages to follow, it is a potent tool for the development of curriculums. Such characteristics make this model highly flexible and suitable for any subject matter and at any stage of thinking.

Paul and Elder (2001) assume that "critical thinkers routinely apply the intellectual standards to the elements of reasoning in order to develop intellectual traits" (p.21). The following figure summarizes the process:

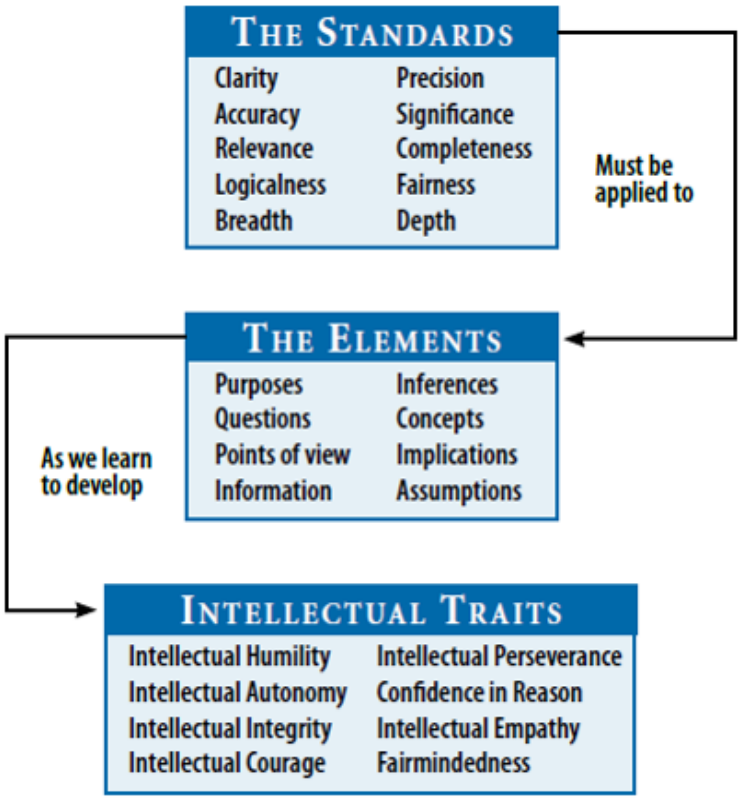

Figure 1.3. Intellectual Standards to the Elements of Reasoning (Paul & Elder, 2020)

1.4. Bloom's Taxonomy and Critical Thinking

There is no agreed definition of the word "learning" because there are various modes of analysis and different research fields. Learning is habitually defined as a permanent change in behaviour that results from experience. Smith (1962) defines learning as "...the acquisition of new behavior or the strengthening or weakening of old behavior as the result of experience" (p.260). Accordingly, Ray Loree (1965) defines it "[...] as a relatively permanent change of behavior that occurs as a result of experience or practice" (pp.193-194). That change in behaviour starts taking place just after birth thanks to life experience a child will encounter. This experience grows up continuously allowing the 'learner' to develop step by step specific thinking skills which in turn will help him think, learn and understand progressively and efficiently. The fact of learning the 'what', the learner cannot think critically and solve problems; therefore, he needs to learn the 'how' in order to strengthen his personal development and be ready to face life challenges and contribute effectively to the social and economic development of society. In this vein, Dr Benjamin Bloom, the educational psychologist, created a hierarchy of the thinking process known today as Bloom's Taxonomy. In his hierarchical pyramid, Bloom outlined six hierarchical and interconnected levels:

1) *Knowledge* (exhibiting knowledge - things are memorised without essentially having a full understanding, e.g. listing, labelling, identifying, defining...)

2) *Comprehension* (recognising information as much as necessary to illustrate it in your own words, e.g. explaining, summarising, describing, illustrating…)

3) *Application* (finding some practical use for the information and use it in problem- solving, e.g. using, applying, solving…)

4) *Analysis* (breaking complex ideas into components so that its organizational composition may be understood, e.g. analysing, categorising, seeing patterns, comparing, contrasting, separating, (re) organizing parts…)

5) *Synthesis* (connecting parts together to form a new whole, e.g. creating, designing, inventing, developing, hypothesising…)

6) *Evaluation* (ability to judge something's worth for a given purpose, e.g. judging, recommending, convincing, critiquing, justifying…)

In 2001, a group of psychologists, curriculum designers, assessment specialists and instructional researchers proposed a revised version of Bloom's Taxonomy of learning objectives in which they replaced nouns with verbs, which gave birth to a new list: remembering, understanding, applying, analysing, evaluating, and creating. The figure in the following page describes the cognitive levels, the order in which they are classified (lowest and highest) and the verbs related to each level.

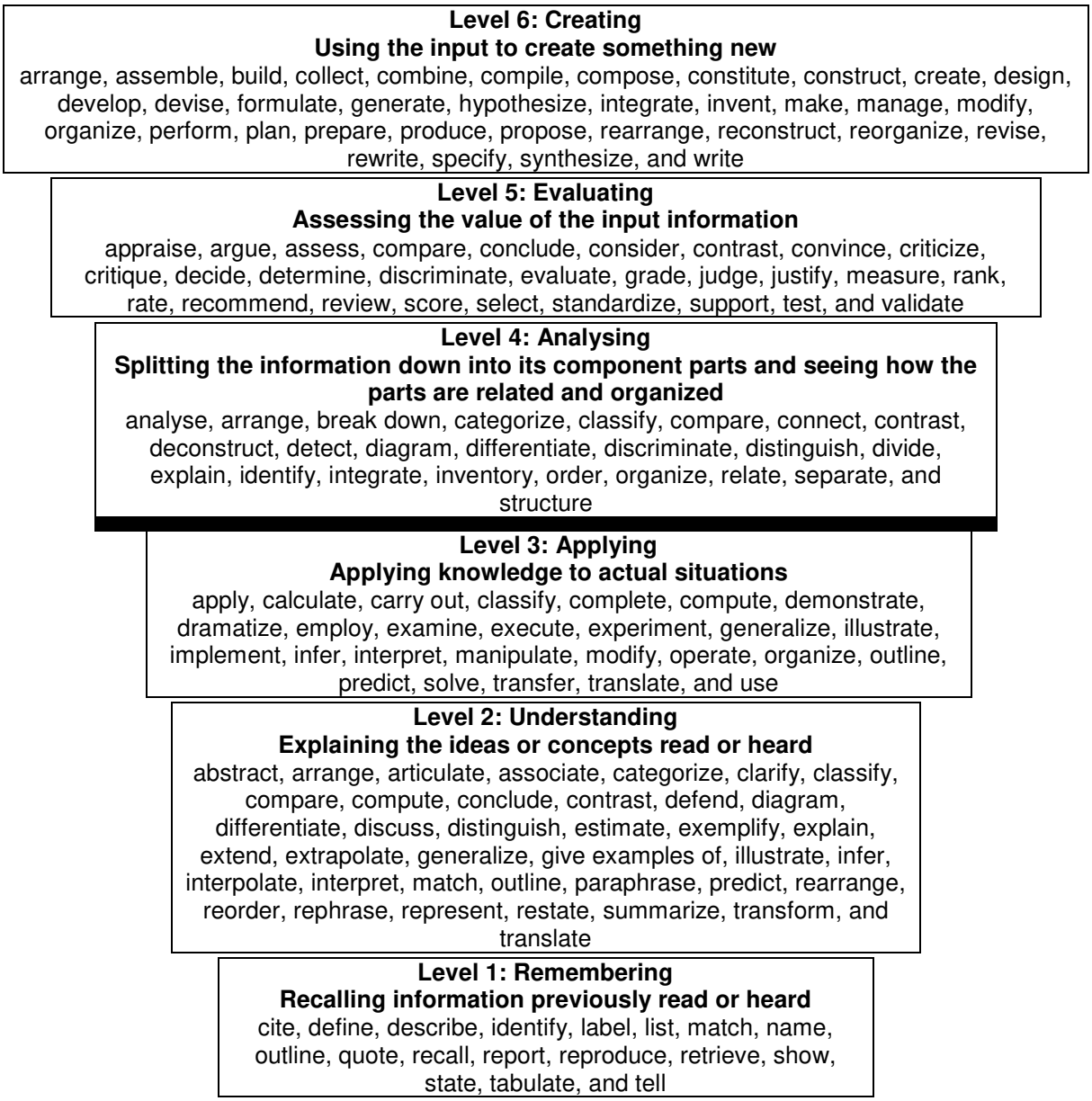

Figure 1.4. Revised Version of Bloom's Taxonomy of Learning Objectives (2001)

As far as the teaching-learning process is concerned, Bloom's Taxonomy has helped teachers to understand the fluctuating levels of cognitive, psychomotor, and affective processes of learners, and how to adjust instruction so as to enhance and develop them among learners. Educationists have elaborated lists of verbs (Figure 1.4) that can be associated to each level of cognition in order to help teachers set measurable learning objectives for their lessons and design tasks accordingly so that they promote critical thinking among their learners. It is worth saying that a task-based approach in connection with classroom projects is an efficient way to enhance critical thinking, concretize learning and enable learners to do what is required to achieve the output, i.e. the end-product.

I.5. Metacognition: An Essential Aspect of Critical Thinking

One of the major problems hindering learning to think critically is the process of knowledge transfer. Due to the predominance of the traditional way of teaching based on knowledge transfer, memorization and regurgitation in schools today, learners are no more able to successfully use (transfer) what they learn in contexts they have never encountered before. It is worth noting that the transfer of knowledge into new contexts could be possible only if what is learned is applied in various new situations. To control the knowledge transfer process, learners need to be equipped with some skills: metacognitive and critical thinking skills.

I.5.1. Metacognition: An Overview

Metacognitive and critical thinking skills share almost the same characteristics; however, metacognition skills include a number of other features with which all the characteristics of critical thinking are incorporated. This implies that critical thinking is one of the skills embedded in metacognition. This implication highlights the universality of the metacognitive skills and makes them useful in any domain that requires higher-order thinking.

Metacognition is one of the significant fields of educational psychology and cognitive developmental research. It has been defined in various ways by many theoreticians. Educators and learners are frequently dealing with this concept in order to make the learning process successful. That is due to the fact that it has been agreed by many researchers like Livingstone (2003), Sternberg (1984), Borkowski and Carr & Pressley (1987) that metacognition is linked with intelligence. In the last couple of decades, this term was adopted by many educational psychologists as a part of their technical dictionaries; however, the whole concept was adopted since humans started to reflect on their cognitive experiences. It is frequently defined as "cognition about cognition" or more simply "thinking about thinking" (Flavell, 1979, p.906), but still the term remains vague and causes much debate over what it exactly means. The reason why this phenomenon caused many mystifications is the fact that there are many terms, which are used interchangeably in literature to describe and mean the same fundamental phenomena like self-regulation, executive control, meta-memory, meta-perception, and meta-comprehension.

Research in this field started with John Flavell from Stanford University, who is regarded as the "father of the field". He has suggested several strategies to improve learners' metacognition abilities, which must be applied by teachers in their teaching. These strategies are supposed to help the promotion of both critical-thinking in the field of education and labour

force. Flavell (1979) defines metacognition as "the individuals' knowledge about cognitive processes and the application of this knowledge for controlling the cognitive process".

Metacognition is divided into metacognitive knowledge and metacognitive experiences or regulation, which occupy an active control over the cognitive processes. In addition, Young (1991) states that metacognition is the capacity to control one's thinking processes engaged in learning or in problem-solving. The processes of planning, monitoring comprehension, and evaluating a task are known as exclusive processes. Through the metacognitive control, learners can apply their cognitive process. In this sense, metacognitive has a vital role in successful learning.

Flavell (1976) introduces some useful examples of metacognition in the following statements:

> I am engaging in metacognition if I notice that I am having more trouble learning A than B; if it strikes me that I should double-check C before accepting it as a fact; [...] if I become aware that I am not sure what the experimenter really wants me to do; if I sense I had better make a note of D because I may forget I; if I think to ask someone about E to see if I have it right (p.232).

Progressively, the concept of metacognition has gone further from cognitive to everything psychological, and the affective domain was mentioned in recent literature to be added to the cognitive one. Flavell (1979), for example, includes both cognitive and affective fields in one of his definitions in which he defines the concept as "all those conscious cognitive or affective experiences that accompany and pertain to an intellectual enterprise" (p.906). Two years later, Flavell (1981) differentiates between metacognitive experiences and metacognitive knowledge. He claims that metacognitive experiences refer to the affective and emotional consciousness while dealing with tasks. For instance, during the elaboration of a research proposal, the feeling that one did not prepare well or the feeling of failing one's communication rises. This anxiety shows that affective consciousness one possesses.

Metacognitive knowledge, however, was designated by Flavell (1981) as "that part of your accumulated world knowledge that has to do with people as cognitive agents and their cognitive tasks, goals, actions and experiences."

Similarly, Paris and Winograd (1990) believe that many researchers accept a definition of metacognition that "captures two essential features of metacognition: self-appraisal and self-management of cognition" (p.17). On the one hand, it is the self-appraisals, i.e. individuals' reflections about their own knowledge and emotional states regarding knowledge states, capacities, abilities and motives that answer the three WHs (what, when, why) and the H (how).

For Paris and Winograd (1990), those acronyms refer to "what you know, how you think, and when and why to apply knowledge strategies" (p.17). On the other hand, self-management refers to the cognitive processes that help learners to "orchestrate aspects of problem-solving" (Paris & Winograd, 1990, p.18), including executive actions, i.e. the plans, regulations/modifications done during the process of the problem- solving and revisions made after finishing the work.

Flavell (1979) mentions that there are four categories of metacognition: (1) metacognitive knowledge, (2) metacognitive experiences, (3) goals/tasks, and (4) actions/strategies. He states that by using components described in these four categories, people monitor their cognitive process. Brown (1987) also elaborates another definition of metacognition and states that:

> [It] refers loosely to one's knowledge and control of one's own cognitive system. Two primary problems with the term are: it is difficult to distinguish between what is meta and what is cognitive; and there are many different historical roots from which this area of inquiry developed. The confusion that follows the use of a single term for a multifaceted problem is the inevitable outcome of mixing metaphors (p.66).

In this definition, Brown identifies the problems of the term. Both Flavell's and Brown's definitions present an underpinning for recognising the knowledge and regulation of cognition as the two major types of the mystifying and complex concept.

Even though Bloom's Taxonomy had been compelling, Ennis propelled critical thinking further. A noteworthy effect on the advancement of conceptualization on critical thinking is Ennis' paper "*A Concept of Critical Thinking*". It is an icon amongst the most inspirational papers in the field of critical thinking since it is widely used as a reference in many studies. The principal meaning of critical thinking that Ennis (1962, p.83) suggests in his paper was the correct assessing of statements. He established an essential investigation into the field of critical thinking utilizing definite and complex originations of the crucial proficiencies and measurements of the accurate evaluation of statements. In his examination of critical thinking, he recognizes three measurements. The first is the reasonable measurement, which covers the judging of charged connections between meanings of words and statements, with the end goal that a person who is skilful in this measurement realizes what should be taken from a statement or groups of statements by exercising prudence in choosing, taking into account meaning. The second measurement alludes to what he calls the criteria measurement, covering the judgment of the thoughts displayed. The third, the pragmatic measurement, covers the impression of the foundation rational and whether the statement is adequate for the rational.

Ennis (1962) set twelve components, or abilities, of critical thinking. Some of these have common characteristics, being secured by or implanted in the three measurements specified previously. These viewpoints frame the premise for capabilities or capacities supporting the manner and behaviour of the critical thinker. Those characteristics are as follows:

- grasping the meaning of the statement;
- judging whether there is ambiguity in a line of reasoning;
- judging whether certain statements contradict each other;
- judging whether a conclusion follows necessarily;
- judging whether a statement is specific enough;
- judging whether a statement is actually the application of a specific principle;
- judging whether an observation statement is reliable;
- judging whether an inductive conclusion is warranted;
- judging whether the problem has been identified;
- judging whether something is an assumption;
- judging whether a definition is adequate;
- judging whether a statement made by an alleged authority is acceptable (p.84).

Notwithstanding these capacities, Ennis clarifies that specific attitudes are vital for critical thinking. He expresses that while the proficiencies and aptitudes of the critical thinker are created impressively and in incredible point of interest; however, something more than a skill seems essential for critical thinking. Ennis embraces that critical thinking capacities are insufficient. Likewise required are the dispositions, which would not be incorporated into a listing of abilities and skills. He develops the “immaculate abilities” conception by including an arrangement of propensities named “dispositions” required for critical thinking. The list of dispositions incorporates such attributes as being receptive, paying consideration on the aggregate circumstance, looking for reasons, and attempting to be very well informed (Ennis, 1987 & Nickerson, 1987).

Ennis adds several supplementary categorizations of critical thinking, which is according to him a “reasonable reflective thinking that is focused on deciding what to believe or do” (Ennis, 1985, p.46). He thinks that the procedure of reflection and of utilizing motivation to choose what to accept or do represent critical thinking attitudes.

Once more, for Ennis, critical thinking is not equal to the utilization of higher-order thinking skills/ aptitudes. The idea of higher-order levels is excessively dubious, vague, and the criteria do not join it for judging. Criteria for making judgments are needed in teaching higher-order thinking skills. By making his perception of critical thinking more extensive than “reasoning” or “informal logic” and distinguishing two primary segments, dispositions and

capacities, he can oblige the possibility that basis learning is significant for critical thinking. For Ennis then it is a principal feature for critical thinking that it has both general and particular segments. Paul (1992) disapproves Ennis' definition and notes that there is vagueness in the utilization of the expression "reflective", most notably because the use of critical thinking can get to be programmed in a person's reasoning, which means utilizing critical norms as a matter of visible reflection. Paul on these grounds makes the supposition that Ennis' term "reflection" suggests an exceptional awareness or deliberateness.

Like Ennis' methodology of critical thinking, Richard Paul enlarges the work of early origination of critical thinking, and his work has had a noteworthy impact in the field of critical thinking. Paul is currently one of the pioneers in the development of critical thinking, and his works are generally referred to in the field of teaching critical thinking. While Ennis concentrates on the capacities of dispositions, Paul focuses on the different components of critical thinking. He attracts considerations to a frequently disregarded component of critical thinking in particular, "thinking about one's thinking" (Paul, 1993).

Paul (2001) argues that all reasoning/thinking is driven by inquiries/ questions, and the nature of thinking is controlled by the nature of the inquiries/ questions. He points out that Socratic questioning has a stable relationship with critical thinking, thus providing educators, teachers and learners with chances to test profound implications during in the process of understanding their own thinking.

Paul (1992) recommended that, since it is usually found that learners' thinking logic is associational and undisciplined, it is useful to consider the "elements of thought" that represent the critical demonstrations of the brain, which are " the basic building blocks of thinking" (p. 28). The eight components of thought which Paul asserts can be utilized as a standard to evaluate the procedure and results of our personal reasoning. These are purpose/goal; question at issue or problem to be solved; information related to data, experiences and facts; judgments and inferences; concepts and theories, assumptions; implications and consequences; and point of view.

As mentioned previously, in Paul's perspective, critical thinking is an efficient approach to frame and shape one's thinking. Everybody can figure out how to persistently enhance one's own thinking, and reasonable individuals assess their particular thinking by expressly utilizing the 'Intellectual Standards'. A developing critical thinker captures components of thought and inquiries by utilizing 'Intellectual Standards', namely precision, logic, relevance, clarity, precision, accuracy, depth, and fairness. Thinking is responsive and guided by intellectual

standards; without these standards, thinking cannot accomplish excellence (Paul and Elder, 2001).

Paul (1987) claims that individuals have both essential and optional natures. The essential nature is the fundamental thought, which is instinctual, egocentric and arranged to silly conviction while the optional nature is a particular ability to work judiciously on the planet. He trusts that numbness is gotten to a great extent from the way that kids come to class with solidly settled actuated convictions in their brain. These convictions are genuine and a great deal more enacted than different originations cultivated by classroom direction, which exists as 'inert knowledge'.

Accordingly, in Paul's view, the only single way that can make a child recreate and exceed these conceptions is by drawing out their particular thoughts in dialogical or rationalistic settings where the two arrangements of thoughts are restricted, and the argument is settled. He clarifies that both are including more than one line of thinking and these showing strategies include the amplified trade between various perspectives or edges of reference (Paul, 2001). In such a manner, practice is viewed as a fundamental part of the way towards critical thinking since it empowers learners to deal with issues and implications from various perspectives. Along these lines, the knowledge learnt in schools can be connected to learners' regular daily lives.

Paul and Binker (1992) distinguish between a weak and strong sense of critical thinking. The weak sense critical thinking is utilizing thinking to preserve our own understanding, thus persuading others that our perspective is accurate; it ends with the motivation behind accomplishment as opposed to exposure.

On the contrary, the strong sense that CT implies is the type of thinking that permits us to scrutinize all cases as well as to look at our own profound prejudices and misguided judgments. Instructing basic thinking in a strong sense implies teaching learners to figure out how to reason dialogically in commonly encouraging ways. Paul (1987) clarifies that the dialogical thinking about the fundamental issues addressed gives the thinker the necessary practice and skills to strengthen the sense of critical thinking.

I.6. Critical Thinking and its Interconnection to Other Concepts

Many researchers have related critical thinking to other concepts frequently recognised as twenty-first-century skills such as metacognition, motivation, creativity and intelligence. All of these skills are going to be tackled independently.

I.6.1. Metacognition and Critical Thinking

Schoen (1983) believes that metacognition is vital in facilitating critical thinking skills. He assured that "a successful pedagogy that can serve as a basis for the enhancement of thinking will have to incorporate ideas about the way in which learners organize knowledge and internally represent it and the way these representations change and resist change when new information is encountered" (p.87). In his explanation, the development of knowledge is referred to as critical thinking, and progression of organizing knowledge can be an aspect of metacognition.

Besides, Halonen (1995) classifies metacognition as the ability to monitor the quality of critical thinking. Likewise, Halpern (1998) explains that metacognition is the capacity to employ knowledge to monitor and develop thinking skills. She presents metacognition and critical thinking together in a four-part model. For her, learners need to experience specific metacognitive skills while engaging in critical thinking, such as scrutinising their thinking, verifying their progress, ensuring correctness, and making decisions. "This implies evidently that critical thinking is a product of metacognition which provides a direction in the prediction of the two variables" (Magno, 2010, p.138). However, in order to become more successful critical thinkers, learners need to apply identifiable and definable thinking skills properly.

Correspondingly, as Halpern, Ku and Ho (2010) made a study where ten university learners with similar cognitive abilities and academic accomplishments but with different levels of critical thinking presentation were tested on six challenging tasks. After analysing the learners' results, they state that the metacognitive strategies used in critical thinking are presented in three categories: planning, monitoring, and evaluating. They concluded that the learners who were using metacognitive activities, high-level planning and evaluating techniques are good critical thinkers. In this vein, metacognitive strategies enable critical thinking to take place, but it is up to the critical thinker to take charge of his/her own thinking processes.

Flavell (1979) sees critical thinking as being a forming part of the notion of metacognition when he states that "critical appraisal of message source, quality of appeal, and probable consequences needed to cope with these inputs sensibly" can guide and direct to "wise and thoughtful life decisions" (p. 910). Similarly, Kuhn (1999) argued that critical thinking is a form of metacognition that consists of metacognitive knowing, meta-strategic knowing and epistemological knowing.

Choy and Cheah (2009) believe that metacognition and critical thinking are interconnected. In their study, they found that when a teacher presents to learners some specific

cognitive and metacognitive strategies like techniques, prompts, topics and keywords, critical thinking takes place successfully. These cognitive strategies and specific metacognitive skills are used to enlarge their critical thinking. To conclude, they maintain that critical thinking involves a higher level of cognitive skills as metacognition. For some researchers, the link between critical thinking and metacognition is self-regulation. For instance, self-regulation is included in the APA Delphi report as one element skill of critical thinking (Facione, 1990).

In addition, Lee (2009) organized online Socratic seminars for high school social studies learners, and he examined the relationships between metacognition, self-regulation and critical thinking. The examination went through four stages:

Stage 1. Lee started by studying the impact of metacognition on learners' self-regulation and critical thinking,

Stage 2. He questioned, as a moderator, the effects of metacognition on the differences in relationships between self-regulation, learners' critical thinking skills and critical thinking disposition.

Stage 3. He examined the link between self-regulation, critical thinking skills, and critical thinking disposition in both the experimental and comparison groups.

Stage 4. He investigated the beliefs behind the implementation and usefulness of the metacognitive tasks.

The result found in this study does not only expose the effect of metacognition on learners' development of self-regulation but also on their potential to extend and enlarge learners' critical thinking. The following chart schematises the relationship between metacognition and critical thinking:

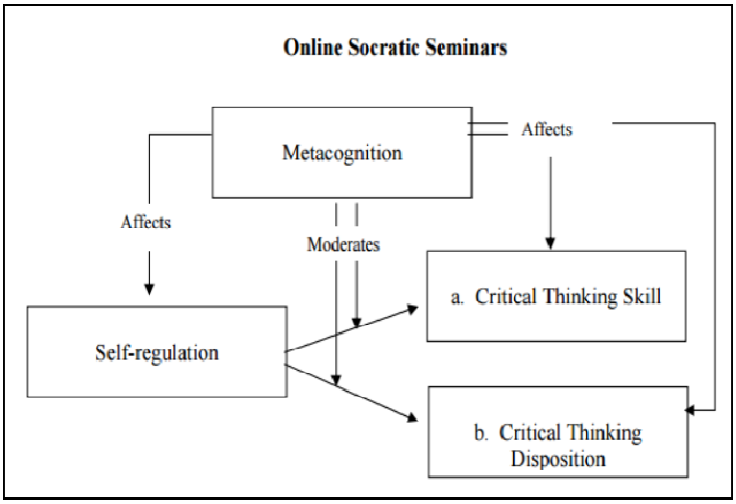

Figure 1.5. Conceptual flow chart of the relationship between metacognition, self-regulation, and critical thinking. (Lee, 2009, p.10)

After making the connections between metacognition, critical thinking, and motivation, Schraw et al. (2006) managed to define self-regulated learning as "our ability to understand and control our learning environments" (p.111). In this context, the three elements of self-regulated learning, especially the cognitive one, embodies the identification and analysis of sources and the drawing of conclusions.

A test was run on a model by Magno (2010). He used metacognition as a prediction tool of critical thinking; this prediction demonstrated that the capacity to examine one's knowledge and thinking processes helps to think critically, i.e. be a critical thinker. While structuring these two variables in a model, Magno launches their academic link mainly with the exploitation of consistent and identical methods. The hypothesis in this study is that critical thinking happens during the use of metacognitive skills and strategies. The two models tested in this study are:

1. Eight factors were the elements of Metacognition as they affect critical thinking.
2. Two factors were chief components of Metacognition.

The results of the two models studied show that metacognition has a notable path to critical thinking. While some researchers agree on the fact that there is a link between metacognition and critical thinking, others argue that critical thinking and metacognition are separate constructs. Lipman (1988), for instance, points out that metacognition is not necessarily critical because it is technically feasible to think about one's thoughts in an unreflective way without analysing them. On the other hand, Mc Peck (1990) argues that the capacity to distinguish or identify when a particular skill is pertinent and to use it is not necessarily a part of critical thinking, but it instead exemplifies ordinary intelligence.

Many critical thinking descriptions incorporate position to the skills frequently linked with metacognition. Paul's (1990) definition, for instance, reveals that critical thinking is "the art of thinking about thinking" (p.32). Kuhn (1999) and Flavell (1979) expressly agree that critical thinking is a measurement of metacognition. Because using the elements and steps of critical thinking may be essential to monitor and control one's own thinking. Others state that metacognition is a form of critical thinking. They state that the ability to use the right strategy among many strategies is often considered as a metacognitive skill, which is actually a component of critical thinking.

Whether critical thinking and metacognition are distinct constructs or metacognition is an element of the construct of critical thinking, or critical thinking is a part of metacognition, the latter is so strongly connected with critical thinking that is implausible that one exists without the other.

I.6.2. Motivation and Critical Thinking

Critical thinking is also associated with motivation. These two so-called 21st-century skills are acknowledged as essential in preparing learners for college, work-readiness, and lifelong learning. As mentioned at the beginning of this chapter, there are numerous definitions of critical thinking. However, most of the definitions contain common element skills such as analysing arguments, making inferences using inductive or deductive reasoning, judging or evaluating, making decisions or solving problems (Ennis, 1985; Lipman, 1988; Facione, 1990; Tindal & Nolet, 1995; Halpern, 1998; Paul, 1992; Willingham, 2007).

In addition to skills or abilities, critical thinking requires dispositions, which can be regarded as manners or habits of mind. They consist of features like open and fair-mindedness, a tendency to search for reason, a desire to be well-informed, flexibility, and respect for and motivation to consider various perspectives (Bailin et al., 1999; Ennis, 1985; Facione, 1990; Halpern, 1998; Paul, 1992). The disposition to think critically has been defined as the "*consistent internal* motivation to engage problems and make decisions by using critical thinking" (Facione, 2000, p.65).

Consequently, motivation is considered as an essential requirement for critical thinking skills and abilities. To reinforce this idea, Halonen (1995) states that the tendency or disposition to reveal higher-order thoughts relates to the motivation of the learners who are in the process.

Halpern (1998) argues that there are two chief dispositions that sustain critical thinking: effort and endurance related to effort. In this vein, Paul (1992, p.13) notes that what makes a person a critical thinker is perseverance, an element of the "traits of mind".

Now, it should be evident that perseverance is vital to all areas of higher-order thinking, and motivation is regarded as a condition, which encourages the exhibition of critical thinking. Evidently, unmotivated individuals are not successful in demonstrating critical thinking. Some researchers, like Turner (1995), argues that in order to make learners motivated, teachers should give challenging tasks, especially those that stress higher-order thinking skills. Both cognition and motivation influence the academic success of the learners, and both of them are influenced by the social context of learning (Linnenbrink & Pintrich, 2002; Pintrich, 2003). Since metacognition and critical thinking are interrelated, Flavell (1979) and Martinez (2006) assert that critical thinking is subsumed under metacognition. However, Schraw et al. (2006) argue that metacognition and critical thinking are subsumed under self- regulated learning which they define as "our ability to understand and control our learning environments" (p.111). They mentioned that self-regulated learning also involves motivation (Schraw et al., 2006).

Since critical thinking and metacognition are part of self- regulated learning, the later entails motivation as part of it. Motivation plays a vital role in both critical thinking and metacognition. In the framework of metacognition, Schraw et al. define motivation as the "beliefs and attitudes that affect the use and development of cognitive and metacognitive skills" (2006, p.112).

I.6.3. Creative Thinking and Critical Thinking

Things get fuzzy when it comes to distinguishing between creative thinking and critical thinking because there is no agreement in the definition of these concepts. Creative thinking takes various definitions depending on the nature of the field, in which it is integrated. Since there are not enough definitions of these concepts, the literature substantiates that both of them are distinguishable.

Beyer (1987) compares the two processes as follows:

> Whereas creative thinking is divergent, critical thinking is convergent; whereas creative thinking tries to create something new, critical thinking seeks to assess worth or validity in something that exists; whereas creative thinking is carried on by violating accepted principles, critical thinking is carried on by applying accepted principles. Although creative and critical thinking may very well be different sides of the same coin, they are not identical (p.35).

Brookfield (1987) and Torrance (1995), on the other hand, think that fostering creative and critical thinking is valuable and advantageous for personal, educational, and economic growth. Criticality and creativity are compulsory for endurance in the world. However, to some extent, it is reasonably accurate that critical and creative thinking entail dissimilar cognitive development.

In the same context, Nickerson (1999) gives some details about the two kinds of thinking and noted that:

> Creative thinking and critical thinking are often contrasted. Creative thinking is expansive, innovative, inventive, unconstrained thinking. It is associated with exploration and idea generation [...] Critical thinking is focused, disciplined, logical, constrained thinking. It is down to earth, realistic, practical, staid, dependable, and conservative. Sometimes creativity and criticalness are seen as polar opposites (p. 397).

According to Guilford (1959), there should be equilibrium guidance in creative thinking and critical thinking; whereas, Smith (1990) recommends that "critical and creative thinking may be viewed academically as unique mental activities [...] but the elements of thinking critically and creatively are in everyone's behavioural and cognitive repertoire" (p.102). He

added that the significant distinction between creative and critical thinking is that "the generation of alternatives is a creative activity, and the selection among them must be critical" (p.101).

As for Brookfield (1987), the significant approach toward critical teaching is embedded in the conviction that "a willingness to risk experimentation in one's teaching is an important aspect of modelling change and promoting critical openness in learners" (p.81).

Some difficulties exist, however, while involving both creative and critical thinking. Nevertheless, to be a better thinker, both of the thinking processes should be combined. In this context, Halpern (2010) acknowledges that "the enhancement of critical and creative thinking is still more of a desirable vision than an empirical outcome" (p.381).

Clegg (2008) explains the link between creative and critical thinking by saying that, "critical assault on confining ideas, structures and even modes of 'being' is fundamental to creativity. Creativity and critical faculties are intimately linked" (p.221).

Teachers and educators, then, should be aware of the importance of these processes. From an appraisal perception, Young (2009) affirms that:

> Teachers who recognise the important role imagination and creativity play in the learning process want to include these high-level thought processes as part of authentic assessment. From creative problem-solving to culminating performance events, curriculum design that includes assessment that captures critical thinking skills, problem-solving abilities and imaginative/creative capacities are promoted by educators at all levels (p.74).

Kong (2007) asserts that "critical and creative thinking are often seen as opposites or dichotomous; in which critical thinker is considered serious, analytical, and impersonal, whereas creative thinker is viewed as one who is wild, unstructured, and sometimes eccentric" (p.319).

According to Bloom (1956), there are six levels of academic performance that are significant in learning, namely knowledge, comprehension, application, analysis, synthesis, and evaluation and as a revision of his work, Anderson (2001), a former student of Bloom, suggests that synthesis and evaluation should be placed at the same levels of complexity. For Lorin Anderson, synthesis or creating connects with creative thinking and that evaluation or evaluating can be linked with critical thinking. Creative and critical thinking are considered as core constituents of learners' life, and both of them are higher-order thinking skills, which will be expanded progressively over time. The following chart by Fisher (2002) sums up the differences between creative and critical thinking:

Critical Thinking		Creative Thinking
Analytic	→	Generative
Convergent	→	Divergent
Vertical	→	Lateral
Probability	→	Possibility
Judgment	→	Suspended judgment
hypothesis-testing	→	hypothesis forming
Objective	→	Subjective
Answer	→	an answer
left brain	→	right brain
Closed	→	open-ended
Linear	→	Associative
Reasoning	→	Speculating
Logic	→	Intuition
yes but	→	yes and

Table 1.1. Difference Between Creative and Critical Thinking (Fisher 2002)

Fisher (2000) makes it feasible to distinguish between creative and critical thinking. However, he affirmed that both of the thoughts are essential in our thinking. Creative thinking is needed to produce new elements, but critical thinking is to make judgements of the new element being created. In her article, Forrester (2008) maintains that "such a distinction is not necessarily helpful in the classroom, because learners need to think in both creative and critical ways and therefore to teach or encourage one style of thinking only may be counter-productive. Instead, an approach is needed which can combine critical and creative thinking" (p.101).

If we are willing to help learners to adapt to a changing world, we would be facing the challenge of developing people able to think in new ways different from the ones from the past. Creative thinking ought to be encouraged in education at all levels because it is a vital part of problem-solving and personal intelligence. Sternberg and Lubart (1999) have proven that the performance of the learners is developed when they are assessed in ways that value and recognise their creative abilities. In the modern context, critical thinking is similarly central in education, for it helps learners assess the significant amount of information provided by multiple sources such as the Internet and mass media. If learners are expected to surpass the mere ability to reproduce others' ideas to the point where they can produce their own, they ought to be able to portray both critical thinking and creative thinking. An approach that joins both critical and creative thinking can boost learners' ability to produce many ideas and arguments, to raise pertinent questions, to be familiar with the strength of arguments, even if these arguments might contradict the previously held opinions. Both creative and critical approaches are crucial to efficient thinking.

In addition to core skills and knowledge, education should also focus on teaching and practising creative and critical thinking skills, because these two sets of skills will promote life-long learning and personal growth.

Creative teachers will inspire creative learners, but those teachers are also required to be critical thinkers to evaluate their own teaching and their learners' learning styles. Creative and critical thinking skills are a way for successful learning and teaching.

I.6.4. Intelligence and Thinking Skills

Before distinguishing between intelligence and the thinking skills, we need to know the nature and the definition of intelligence and whether this intelligence makes people critical thinkers and vice versa, i.e. if learning to be a critical thinker helps people to be more intelligent.

I.6.4.1. The Nature of Intelligence

Although a lot of research and great debates have been done in the field of intelligence, there is no specific or one standard definition of this ability. However, some of the existing definitions have strong similarities. They say the same thing but in different words. In the field of psychology, intelligence is considered as one of the essential and notorious topics. It is worth noting that intelligence and thinking are interrelated processes. Halpern (2014) maintains that "it is a basic topic in thinking because intelligence is the "stuff" of which thought is made" (p.29). Some of those definitions are presented in the following paragraphs.

The first thing to mention is that intelligence is a "cognitive ability" (Herrnstein and Murray, 1996). Gardner is one of the pioneers in this field who keeps on debating what should the word "intelligence" accurately mean. For Gardner (1993), intelligence is "the ability to solve problems, or to create products, that are valued within one or more cultural settings". In this vein, Gottfredson (1997b) offers the following definition:

> [Intelligence] involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning, a narrow academic skill, or test-taking smarts. Rather it reflects a broader and deeper capability for comprehending our surroundings—'catching on', 'making sense' of things, or 'figuring out' what to do (p.13).

Both of the definitions deal with the idea of solving problems. W.V. Bingham (1937) claims that the term intelligence is used to mean the capacity of an individual to solve new

problems. The term intelligence is also linked to thinking and reasoning. For M. Anderson (2006), intelligence is "[...] that facet of mind underlying our capacity to think, to solve novel problems, to reason and to have knowledge of the world."

Intelligence is also connected with individuals' ability to succeed in life and to achieve objectives and goals in different environments. In this context, Legg and Hutter (2007) maintained that the definitions agree with the same initiative that "intelligence measures an agent's ability to achieve goals in a wide range of environments".

A number of standardised tests like Binet and Simon's test, the Alpha and Beta army tests, the Wechsler scales and many others have been used to measure the Intelligence Quotient (IQ) of someone who takes one of those tests. The IQs are expressed in numbers from 0 to 100. Many researchers claim that IQ tests measure only a part of the thinking skills, which deals with success in life. For Stanvovich (2009), "IQ tests are good measures of how well a person can hold beliefs in short-term memory and manipulate those beliefs, but they do not assess at all whether a person has the tendency to form beliefs rationally when presented with evidence" (p.3). As individuals, we are asked to measure our ability to think critically. This fact is "largely absent from intelligence tests" (Halpern, 2014).

In her book *Thought and Knowledge: An Introduction of Critical Thinking*, Halpern (2014) mentions that most of the definitions of intelligence given by ordinary people were reliable to the nature of critical thinking. As a result, intelligent thinking was for many people related to the notion of critical thinking. She also noted that "critical thinking ability is not assessed with standard measures of intelligence". She related intelligence to reasoning well even though there were some people who were more intelligent than others were; each one could learn how to be more intelligent. She added that "although there is a positive relationship between critical thinking and intelligence test scores, the relationship is not strong. So, will becoming a critical thinker make you smarter? No, if intelligence is measured with standardised IQ test, but yes, if we want to know how well someone thinks in everyday situations" (pp.33-34).

I.6.4.2. The Nature of Thinking Skills

It is the process of using the mind to explain things, understand, evaluate, make decisions and solve problematic issues. Many types of thinking skills emerged; the most known ones are the critical thinking skill and creative thinking skill. The former stands for the ability to evaluate ideas and measure their logic relying on some skills like comparing and contrasting,

characterising, listing accordingly, collecting and classifying, analysing, evaluating and summarising. Creative thinking, however, is the ability to generate pertinent ideas, produce new things that are extraordinary, genuine, valuable and abstract. It is also the aptitude to explore meaning deeper so as to understand and solve problems creatively. It is characterized by its originality-holding new and original ideas, flexibility-getting ideas from different sources, expansion-adding additional ideas and fluency-using many ideas at once.

1.7. Conclusion

This chapter was developed to introduce a relevant review of literature related to the notion of critical thinking. It also provided the research background, and different definitions were discussed and compared. In an attempt to find out the importance of the focus integration of critical thinking skills in EFL classes, this chapter was carried out to shed light on the concept of CT. Within this chapter, Bloom and Paul Elder's works on CT were covered in detail in order to identify the CT genesis. It also addressed how the critical thought developed over time from the Socrates era to the 21st century. In addition, CT and its interconnection to other concepts were also highlighted with other concepts. The next chapter will attempt to introduce the concept of PBL, its origins, theories and types so as to be able to relate it with the concept of critical thinking in the current study.

Chapter Two

PBL and Project Pedagogy Conceptual Foundations

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2.1. Introduction

This part of this study involves the theoretical reinforcements of both Competency-Based Approach (CBA) and Project-Based Learning (PBL). It accommodates an overview of CBA as an approach and its relationship with PBL as a practical tool. A brief history of PBL, the aspects and theories of learning related to it and the core focus of the approach, namely the project work, are discussed in this chapter.

Moreover, it attempts to shed light on the syllabus and the textbook in the Algerian educational programmes and the place of project work. The objective of this chapter is to afford an overall introduction to the project pedagogy and to give the necessary background for examining the PBL notion in an efficient and rational way.

This chapter aims at defining and clarifying some key concepts, which help understand and frame the principles of the new pedagogy. Thus, it is imperative to focus on the definition of the project work, its genres, and steps to follow to reach valuable products, the roles of both the teacher and the learner.

2.2. Project-Based Learning and Competency-Based Approach

There are distinct models of syllabus development, some of which focus on personal wand development. The CBA, for example, is a prevalent educational approach, which emerged in the United States in the 1970s. It focuses on measurable and useable knowledge, skills and abilities. It consists of teachers basing their instructions on concepts expecting to foster deeper and broader understanding. This new approach has become a suitable topic in curriculum discourses as it asserts that learners should activate their values, knowledge, attitudes, skills and behaviours in a personal way to address challenges flourishingly.

CBA focuses not only on inputs but also on outcomes in learning. Competencies represent a complex articulation of knowledge, attitudes and skills that learners can use whenever they are needed, not just in tests and exams. CBA curricula adopting learner-friendly teaching and learning strategies could create a shift from rote memorisation to the development of higher-order intellectual skills and life skills, including communication, social and emotional and other relevant skills. CBA addresses what the learners are expected to do rather than what they are expected to learn.

Learning is seen as the active participation of the learner and the creative use of new knowledge through interaction with other learners. So in such context, learning should be seen as knowledge transmission from the teacher to the learner. In this case, the role of both the

learner and the teacher will change in the classroom. Murdoch (1990) claims that the teacher "is no longer expected to tightly orchestrate and dominate all the work in the classroom [...] his role is defined more in terms of a facilitator who sets up conditions and activities that will make it possible for students to operate with language." (Cited in Kral, 1994, p.48). The learner, on the other hand, is placed at the centre of the learning process. S/he "is not simply a passive receptacle into which the teacher pours knowledge" (Champeau de Lopez, 1989 in Kral, 1994, p.16).

We can clearly say that the competency-based education/learning is an outcome-based instruction, and it is flexible to the continually changing needs of learners, teachers and the community. Competencies describe the ability to exploit fundamental skills and higher-order skills in situations that are commonly found in everyday life. Hence, CBA is based on a set of outcomes that are elaborated from an analysis of tasks consistently required of learners in life situations.

In 2002, Algerian MNE adopted the CBA as a new approach, and it was applied in the teaching of different subjects, including the English language. To apply it methodically, new English textbooks and syllabuses were designed and they all recommend the implementation of PBL methodology whose main component is the project work. To highlight its importance, the MNE (2005b) states that "it is only through carrying out project work that our learners and we can live up to the basic principles of the Competency-Based Approach" (p.17). The integration of competency-based and project work methodology makes this new approach distinct from the previous ones, namely the traditional and communicative approaches.

2.2.1. A Brief History of PBL

PBL has a long history. For over 100 years, John Dewey, the father of progressive education, the founder and the most prominent representative of the practical pedagogy that supports "learning by doing". This progressivist stresses the need for student-directed learning; besides, he promotes the teaching strategies and topics that are relevant to learners' lives in order to make them active and very engaged (cited in Krajcik, Czerniak & Berger 2003; Grant, n.d.). Dewey (1932) also insists on introducing a variety active tasks in school so that "the entire spirit of the school is renewed...(and) becomes the child's habitat, where he learns through directed living, instead of being only a place to learn lessons." He added, "It would be most desirable for the school to be a place in which the child should really live, and get a life experience" (pp.15-53). The crucial feature of Dewey's concept, so-called instrumentalism, is

individual experience gained in practice that accommodates motives, expands interests and helps to reveal and solve problems. In other words, Dewey favoured learning by and through experiences. Moreover, the development of children's activity is also very conspicuous. This conception gave birth to “an active” school, where PBL was its basis, (Průcha et al., 1998, p.184). Dewey also claimed that the classroom should be a reflection of society and that learners should be active agents in their learning process rather than empty vessels to be poured with information by their teachers. Dewey was followed by other educators, such as William Kilpatrick (1871-1965) who has approved the benefits of experimental student-directed learning and planned numerous field trips, interdisciplinary activities and laboratory investigations. Other educationists highlighted the universality of PBL in the United States and said, “Doing projects is a long-standing tradition in American education” (Markham et al. 2003).

Markham et al. (2003) provide interesting information on the newly adopted teaching and learning method, i.e. the PBL, which has actually emerged thanks to some consistent developments in learning theories, neuroscience and psychology. In this context, they state that “research in neuroscience and psychology has extended cognitive and behavioural models of learning—which support traditional direct instruction—to show that knowledge, thinking, doing, and the contexts for learning are inextricably tied” (p.3). They also refer to the considerable changes that occur in the world today and noted that:

> Nearly all teachers understand how the industrial culture has shaped the organisation and methods of schools in the 19th and 20th centuries, and they recognise that schools must now adapt to a new century. It is clear that children need both knowledge and skills to succeed (Markham et al., 2003, p.3).

According to them, the increasing popularity of PBL is mainly due to the necessity of education adaptation to a changing world (Markham et al., 2003).

2.2.2. The Founding Principles of PBL

“Tell me and I forget. Show me and I remember. Involve me and I understand.” As this Chinese proverb best explains the purpose of PBL, there is no one accepted the definition of PBL. PBL is a student-driven, teacher-facilitated approach to learning. It is an instructional approach used to promote active and deep learning by involving learners in investigating real-world issues in a collaborative environment. Sheppard and Stoller (1995) describe PBL as "a multi-step activity" that has the following features: (1) It necessitates "a sequence of multi-skill

activities;" (2) it emphasises "on a theme of interest rather than a specific language task;" (3) it demands "student involvement, collaboration, and responsibility;" (4) it requires "students working together to achieve a common purpose and a concrete outcome"; in addition,(5) it entails "students to work over several days or weeks, both inside and outside the classroom, in collaboration with native and/or non-native speakers of the target language" (p.10). Furthermore, The Buck Institute for Education (BIE) defines standards-focused PBL as "a systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks" (Markham et al., 2003, p.4). According to present research (Thomas, Mergendoller, & Michaelson, 1999; Brown & Campione, 1994, as cited in Orey, 2010), projects are complex tasks, based on challenging questions, which serve to organize and obtain activities, which are taken as a whole amount to a meaningful project. In addition, in PBL, learners explore, plan, make judgments, implement, interpret and synthesize information in meaningful ways. Besides, they can "evaluate projects that have real-world applications beyond the classroom" (Blank, 1997; Dickinson et al., 1998 & Harwell, 1997). It is more paradigmatic of how adults are asked to learn and exhibit knowledge. Moreover, interdisciplinary activities that are long term, student-centred, and integrated with real-world issues and practices are emphasised, rather than short, isolated lessons (Challenge 2000 Multimedia Project, 1999, as cited in Özdemir, 2006). Projects encompass a spectrum ranging from brief projects of one to two weeks based on a single subject in one classroom to yearlong, interdisciplinary projects that involve community participation and adults outside the school (Thomas, Michaelson, Mergendoller, 2002, as cited in Özdemir, 2006). Learning should not only prepare individuals for life, but it should also be an integral part of life itself. Simulating real problems and real problem solving is an integral function of PBL (Dewey, 1897). Additionally, PBL is sometimes equated with inquiry-based, experiential learning or project-based instruction. In sum, PBL should:

- Be anchored in the core syllabus and multidisciplinary
- Involve learners in sustained effort over time
- Involve learners in decision-making
- Be collaborative
- Have a clear real-world connection
- Use systematic assessment: both along with the way and the end product

Chapter Two: PBL and Project Pedagogy Conceptual Foundations

Research in psychology and neuroscience has illuminated the relationship between knowledge, thinking and doing. Learning by doing, in the classroom context, helps learners to foster and develop their thinking skills and competencies. It is worth noting that the learning and intellectual development process depends a lot on the individual's community, peers and also the past experiences since they place learners in real-life contexts that help to foster learning through doing. The 21st-century rapid progress done in the technological and scientific field has pushed the educationists to reconsider their teaching/learning approaches and methods so as to adapt them to today's learners' intellectual and social needs. If learners are equipped with appropriately chosen and adapted tools, they can build skills and competences they will use to face the challenges of the modern world, a world that encloses a tremendous multi-language, multi-culture and multi-faith community. So to face it, 21st-century learners need to equip themselves with some skills like communication, collaboration, creativity and critical thinking, the 4Cs as named by some educationists. It is within this context that Project-Based Learning has appeared as a tool to enhance those skills and pave the way to learners to experience real-life issues, in and outside the classroom limits, and find appropriate solutions to manage them. PBL's definitions and descriptions are diverse. Viewed as a pedagogical approach, it enables learners to promote interactive and deep learning, thereby engaging them and allowing them to discuss real-life problems collaboratively and find solutions. Markham et al. (2003) define PBL as a "systematic teaching method that engages students in learning knowledge and skills through an extended inquiry process structured around complex, authentic questions and carefully designed products and tasks" (p.4). Similarly, Beckett and Slater (2005) consider it as a means to engage learners in "simultaneous acquisition of language, content, and skills" (p.108). Thanks to PBL, learners develop their target language, a tool they need for various purposes in real life. They also develop their four skills naturally, namely listening, speaking, reading and writing (Sheppard & Stoller, 1995). Also, Blank (1997), Harwell (1997), Dickinson et al. (1998), and Westwood (2008) claim that PBL learners mainly put into practice their higher-order thinking skills in order to investigate, plan, judge, examine, make decisions, draw conclusions, synthesize and evaluate their projects on the basis of real-life issues. PBL encourages communication and collaboration because they are two essential elements that help learners to find solutions to various real-life issues. Baghoussi and El Ouchdi (2019) consider PBL as "a way to prepare learners for life by enabling them to stimulate and solve real-life problems" (p.274). In order to describe the hallmarks of the project-based Approach, Boss and Krauss (2007), as cited in Baghoussi and El Ouchdi (2019), acknowledge that:

- Projects form the centrepiece of the curriculum; they are not an add-on or extra at the end of a "real" unit.
- Students engage in real-world activities and practice the strategies of authentic disciplines.
- Students work collaboratively to solve problems that matter to them.
- Technology is integrated as a tool for discovery, collaboration, and communication, taking learners places they couldn't otherwise go and helping teachers achieve essential learning goals in new ways.
- Increasingly, teachers collaborate to design and implement projects that cross geographic boundaries or even jump time zones (Krauss, 2007, p.12).

2.3. Constructivism: The Theory Underlying PBL

Constructivism is an adequately recent learning theory. The theoretical underpinning of PBL is vigorously established in this theory. Its focal point is on learners' experiences.

Dewey (1933) affirms that learners construct their knowledge when engaged in problem-solving situations. Therefore, they become active agents in the learning process. The teacher, however, turns into a facilitator and a collaborator encouraging learners to solve problems and thus helping them learn through experience. In this vein, Dewey (1933) states that "learning is something that the pupil has to do himself and for himself; the initiative lies with the learner. The teacher is a guide and director; he steers the boat, but the energy that propels it must come from those who are learning" (Dewey, 1933, p.36).

Hereof, Railsback (2002) preserves that "project-based instructional strategies have their roots in the constructivist approach" (Railsback, 2002, p.6). More specifically, PBL obtains its principles from pragmatic, social and cognitive constructivism, which constitute the main strands of the constructivist learning theory.

2.3.1. Pragmatic Constructivism

Constructivism can be traced back to the developmental work of John Dewey, a philosopher of education, who believed that learners actively construct knowledge when they are thinking or motivated to solve problems. The main point is that learners try to be responsible and to participate actively in their learning. For that reason, he discards the notion that individuals absorb knowledge passively. It is claimed that this theory best supports the implementation of PBL. In this perspective, Dewey (1933) sees the learner as the sole agent responsible of his/her own learning, and the teacher as a guide and facilitator who directs the learning process. (Dewey in Simpson, Jackson & Aycock, 2005). Furthermore, he claims that

the good teacher is the one who gives his /her learners something to do and thanks to such classroom practice, learning comes about both naturally and through experience.

2.3.2. Cognitive Constructivism

Cognitive constructivism focuses on the research of Jean Piaget, a developmental psychologist, who addresses that an individual adapts to a particular background to construct his knowledge, and this development is a biological process. For Piaget, humans cannot be "given" information, which they immediately understand and use. Instead, they must "construct" their own knowledge which they build via experience. Experiences permit them to create schemas in their heads; besides, through assimilation and accommodation, schemas are changed, developed, and made more sophisticated.

On the one hand and according to Piaget, assimilation is “the acting on a situation with initial organizing schemes - to make the situation similar to the present cognitive structures of the learner” (Fosnot, 2005, p.288). Individuals, in this case, try to understand new information by connecting it with existing previous knowledge. On the other hand, accommodation occurs when learners are incapable of associating old knowledge to further details because of contradictions with the existing data, and they contemplate to adjust or adapt the new information to their current knowledge. Learners can participate actively, make connections with prior knowledge and gather new information. As a result, learners are no more passive learners, waiting for the teacher to pour information into them, but instead, they are active actors who receive knowledge and produce outcomes by analysing and making connections between the real world and their own.

2.3.3. Social Constructivism

Social constructivism is a further development of the constructivist learning theory, which is based on the work of Lev Vygotsky. As it is said above, the constructivist theory impacts on learning, and the curriculum is adapted to connect to students' present structures of knowledge. Learners discover knowledge and assess their own learning progress. Under the theory of constructivism, the learner is viewed as a 'lone scientist' (Jarvis, 2005, p.39). In other words, learning appears to happen in isolation from a social environment (Pritchard, 2005). Since it has been accepted that learning takes place in a social setting, learners learn through social interactions with more knowledgeable people (Jarvis, 2005). Expressly, learning occurs through and during the interaction.

In contrast to Piaget's theory, Vygotsky explains that the cognitive development of learners depends on Zone of Proximal Development (ZPD): a specific space or level of understanding, "which is just above the level of understanding" (Pritchard, 2005, p.31). Vygotsky (1978) believes that learning is most effective when instruction is received in the ZPD. He defines it as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p.86).

Additionally, Project-Based Learning (PBL) is an approach that is supported by the theoretical basis of social constructivism (Roessingh & Chambers (2011). Moreover, its principles require that language is to be learnt within the interactions between learners, learning tasks and the teacher (Williams & Burden, 1997, p.43). The role of scaffolding in PBL is crucial to acquire knowledge and skills (Grossman et.al, 2019). Also, as part of project work, teachers and peers can provide valuable scaffolding to support deeper learning, critical thinking, and problem-solving skills (Grant, 2002 & Newell, 2003). A PBL practitioner is regarded as a facilitator whose role is to encourage learners to learn how to learn, not deliver information to them. This approach may help learners to do their best to achieve their goals and objectives. Moreover, it helps them to acuminate their thinking by giving feedback to their peers and groups.

According to Markham et al. (2003), teachers in PBL "facilitate and manage the process of learning" (p.8). In other terms, teachers need to create tasks or activities that allow students to think or solve problems, then assist them with tackling the problems to find the answer. Markham et al. proposed that teachers should have "interpersonal and communication skills" (Markham et al., 2003, p.9) and the ability to conduct the open-ended learning process.

2.4. Project-Based Learning vs. Problem-Based Learning

Problem-based learning and project-based learning both have the same acronym: PBL (Lee & Tsai, 2004); though, in this thesis, the abbreviation PBL is only used to refer to Project-Based Learning. Though they have several similarities, they are two distinct approaches to learning and "are used interchangeably"; in addition, they "both describe a process of using *ill-structured* problems" (Markham et al. (2003). They are based on authentic educational goals and include a formative and summative evaluation. They also emphasise the paradigm of putting the learner at the centre of the learning process and the teacher as a facilitator/coach (Markham et al., 2003).

Moreover, learners' research and problem-solving skills are improved, as well as their ability to work collaboratively and cooperatively with their peers. Despite those similarities, project and problem-based learning are not identical approaches. Project-Based Learning (PBL) tends to be associated with engineering and science instruction. It is also used in these disciplines but has its origins in medical training and other professional preparation practices (Ryan, Christopher, Koschmann, & Timothy, 1994).

In PBL, learners have a great deal of control of the project they will work on and what they will do in the project. The latter may or may not address a specific problem; whereas, in particular situations, a particular problem can be specified by the course instructor. In this case, learners work individually or in teams over a period of time to develop solutions to that problem. This approach is eventually applied to problem-based learning.

It is clear that in PBL, learners dominate their learning and collaboratively work together to accomplish their intentions. They have the convenience to build up their knowledge and establish both their creative thinking and skills throughout their projects.

As defined in the literature, PBL and problem-based learning share several characteristics. The difference between the two methods, however, lies mainly in their implementation. Problem-based learning tackles the problem and process, while PBL focuses on the final outcome.

2.5. Project Pedagogy

In the mid-1970s, educationalists started to use the project work method as an instructive means to encourage language learning. However, in the early 1990s, it was used widely in classrooms (Eyring, 1997). Kilpatrick is the first educationalist to tackle the integration of project pedagogy in education (Wrigley, 1998). His interests were not only on the fact that projects are collaborative but also on the effect of project work on the cognitive progress of learners. Many researchers in this field agree on the point that the use of project pedagogy is applicable for even non-native speakers; however, Kilpatrick claims that this could be adequately implemented only with native speakers of a language (Beyer, 1997). Kilpatrick regards the teacher and learners as decision-makers in the learning setting. In other words, the classroom should be a *democratic place* where decision-making is the key criterion of project work (Eyring, 1997). In such environment, learners learn to become not only responsible and independent individuals when conducting projects but also socially cooperative.

2.5.1. Project Work

Though the term 'project' has many significances in education; this dissertation puts more focus on the definition provided by Stoller (2002) who defines the project work as "[...] student centred, though the teacher plays a major role in offering support and guidance throughout the process" (p.110). She also states:

> Whatever the configuration, projects can be carried out intensively over a short period of time or extended over a few weeks, or a full semester; they can be completed by students individually, in small groups, or as a class; and they can take place entirely within the confines of the classroom or can extend beyond the walls of the classroom into the community or with others via different forms of correspondence (p.111).

Moreover, Helm and Katz (2001) define the project as:

> [...] an in-depth investigation of a topic worth learning more about. The investigation is usually undertaken by a small group of children within a class, sometimes by a whole class, and occasionally by an individual child. The key feature of a project is that it is a research effort deliberately focused on finding answers to questions about a topic posed either by the children, the teacher, or the teacher working with the children (p.1).

In the same perspective, Eyring (2001) defines project work as "the quintessential experiential language learning approach [...] in terms of its view of learning, power relations, teacher and learner roles, view of knowledge, view of curriculum, learning experiences, control of process, motivation and evaluation" (p.336).

Haines (1989) adds that projects are "multi-skills activities", and they are based on either "topics or themes", but not just on specific language components. Most importantly, learners should feel free to choose the subject matter, the suitable working methods, the appropriate project time management and the type of the final product they will get. When specific language items are not prescribed for learners and since they keep focusing on reaching the target goal they agreed on, they will eventually have opportunities to reuse and exploit naturally the language items and skills they have acquired so far.

Similar to Haines' conception, Eyring (1997), also affirms that projects "must incorporate some form of student input; their content must derive from the real second-language world either through extensive contact with native speakers or native texts; they must integrate language skills; and they must extend over a fairly long period of time" (p.4).

Legutke and Thomas (1991) define the project work as a learner-centred and task-based activity which is the result of a group discussion between all participants. It is considered as a task, which focuses on language skills achieved through several practical activities (Hedge, 1993). Moss & Van Duzer (1998) state that the project work is a problem-solving activity, and they define it as "an instructional approach that contextualises learning by presenting learners with problems to solve or products to develop".

According to Stoller (2002), the value of project work does not lie only in the final outcome, but in the process of working towards the endpoint. Indeed, in PBL, the focus is put on both the experience of the process and the end-product. Fried-Booth (2002) adds that "it is the route to achieving this end-product that makes project work so worthwhile" (p.6). Undoubtedly, it concedes enough room for learners to exercise and increase their cognitive skills both within and beyond the classroom situation and results in developing their impression of accountability and autonomy in learning. Hereof, Skehan (1998) affirms that "project work enables the gradual development of autonomy with progressively greater responsibility being taken by learners" (p.273).

In a similar line of thought, Hedge (1993) relates the project to a task in which learners use their language skills, and he defines it as:

> [...] an extended task, which usually integrates language skills work through a number of activities. These activities combine in working towards an agreed goal and may include planning, the gathering of information through reading, listening, interviewing, etc., discussion of the information, problem solving, oral or written reporting, and display" (p.276).

He also pointed out that projects are learner group-centred work rather than a teacher-directed work, and thus learners are responsible for planning, carrying out and presenting their final products.

Fried-Booth (2002) provides the following definition of project work:

> [It is] student-centred and driven by the need to create an end-product. However, it is the route to achieving this end-product that makes project work so worthwhile. The route to the end-product brings opportunities for students to develop their confidence and independence and to work together in a real-world environment by collaborating on a task" (p.6).

Thomas (2000) proposes multiple criteria:

> 1) "Projects are central, not peripheral to the curriculum"; 2) "projects are focused on questions or problems that 'drive' students to encounter (and struggle with) the central concepts and principals of the discipline"; 3) "projects involve students in a

constructive investigation"; 4) "projects are student-driven to some significant degree", [and] 5) "projects are realistic, not school-like" (pp.3-4).

Additionally, Thomas and Mergendoller (2000) claim that project work is collaborative and they consider it as a sixth criterion.

The antecedent definitions imply that project work involves learners' research and investigations, which culminate in an end-product. In other terms, project work has both a process and a product orientation. Moreover, project work encourages creativity, critical thinking, collaboration, and learner autonomy. Accordingly, learners investigate, negotiate, debate, and plan to end up with a solution.

2.5.2. Genres of Projects

Although project work can have different definitions, it can also have different types and forms depending on many factors. It may differ in data collection techniques, in the way information is reported and in the teacher's contribution to organizing projects.

On the one hand, Henry 1994 (in Stoller, 2002, p.110) classifies projects into three types:

Types of Projects	Methodology
Structured projects:	The teacher specifies them in terms of topic, materials, methodology, and presentation.
Unstructured projects:	The learners broadly defined them.
Semi-structured projects:	Teacher and learners define them collaboratively.

Table 2.1: Henry's Types of Projects (Henry, 1994)

On the other hand, Haines (1989, p.1) identifies four types of projects in terms of the way data is gathered:

Types of Projects	Data Collection
Research and information projects:	They engender the collection of data via the library, the Internet or archives.
Correspondence projects:	They necessitate communication with individuals to demand information utilizing electronic mails, letters, faxes, or phone calls.
Survey projects:	They require the design of a survey instrument and then use it to gather and analyse informants' data.
Encounter projects:	They entail a face to face interaction with guest speakers, individuals outside school.

Table 2.2: Haines's Types of Projects (Haines, 1989)

Moreover, since projects can differ in the way information is transmitted to an audience, Haines (1989) has added three other types:

Types of Projects	Transmission of Information
Production projects:	They are related to the creation of a product that can be a video, a written report, a radio programme, brochures, or letters.
Performance projects:	They can involve oral performance or theatrical performances.
Organizational projects:	They can comprise the planning and formation of a club or a conversation table. (Haines,1989, p. 1)

Table 2.3: Transmission of Information in Haines's Types of Projects (Haines, 1989)

2.5.3. Steps of Project Development

The development of project work is an ongoing process carried out by learners with support from teachers. For this reason, project work entails certain stages of development so as to be successful. Some proposed models for promoting project work in the EFL context are identified as follow:

2.5.3.1. Papandreou Framework Model:

Papandreou (1994) asserts that a project is a process in which learners control a range of activities. According to him, to conduct a project, learners need to go through certain stages, so he proposed the following steps:

Steps	Tasks
Step 1: Preparation	The teacher presents the topic to the learners. Both discuss the topic using the ask-answer method.
Step 2: Planning	The teacher and the learners decide the procedure for gathering and analysing data, and different work is set.
Step 3: Research	The learners work individually or collaboratively to collect data from different resources.
Step 4: Conclusions	According to the analysis of the data gathered, the learners draw conclusions.
Step 5: Presentation	The learners are expected to present their final product to the audience.
Step 6: evaluation	The teacher provides comments on the learners' endeavour and efforts.

Table 2.4: The Six-Step Model of Papandreou (1994)

Furthermore, the six-step model of Korkmaz & Kaptan (2000) is similar to some extent to that of Papandreou (1994). The teachers' and students' roles have been omitted from the original table; only the steps and the tasks are described in the following table:

Steps: Application Process	Tasks: Things that Will Be Done
Step 1: Stating the subject and sub-subjects and organizing the groups	Learners explore the resources, and in order to create a frame for the project, they state questions.
Step 2: Groups create projects	Group members make a project plan. They ask questions like "Where are we going?"; "What will we learn?" vs. They choose their roles in the project.
Step 3: Application of the project	Group members are organized and analyse the data and information.
Step 4: Planning of the presentation	The members define the essential points in their presentation and then decide on how to present the project.
Step 5: Making the presentation	Presentations can be made in any place: different schools or classes.
Step 6: Evaluation	Learners share the feedback of everyone on their project. Both the learners and the teacher share the project(s) with everyone.

Table 2.5: Steps for Implementing PBL (Korkmaz & Kaptan (2000) cited in Gökhan Bas, 2008)

2.5.3.2. Fried-Booth Framework Model:

As for Fried-Booth (1986), he claims that a project progresses throughout three stages. The latter are presented in the following figure:

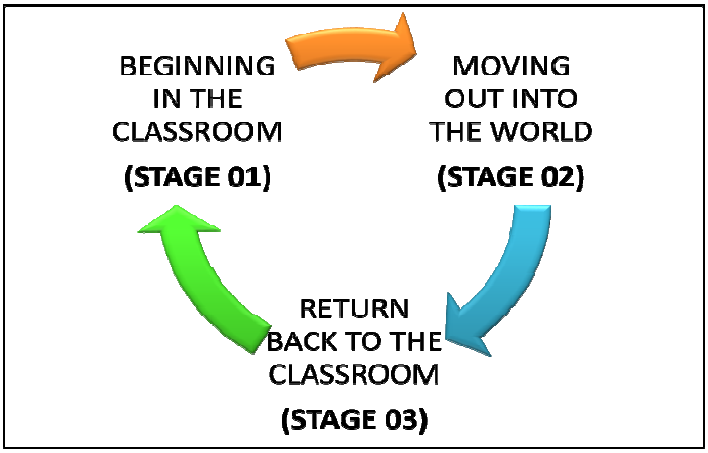

Figure 2.1: Project Work Development Stages

The model mentioned above has later been expanded into a number of development stages and steps. The latter are illustrated in the two following tables:

Project Stages	Tasks
Classroom Planning	Working collaboratively: both the teacher and learners discuss the content of the project.
Carrying out the project	Learners move out of the learning setting to effectuate the work they have planned with their teacher like collecting data and conducting interviews.
Reviewing and monitoring the work	Discussions and feedback sessions are done to evaluate the project.

Table 2.6: Project Stages of Fried-Booth (1986)

Fried-Booth also suggests eight steps of development. The table below demonstrates them:

Steps	Descriptions/Tasks
Step 1: Stimulus	Discussing the topic for investigation.
Step 2: Definition of the Project Objective	Discussing and negotiating the objective of project work.
Step 3: Practice of Language Skills	It includes the language that learners need for completing their project. It also introduces many language functions like suggesting and asking for information.
Step 4: Design of Written Materials	It includes, for instance, writing questionnaires for the sake of gathering data. The reading and writing skills are prominent during this phase.
Step 5: Group Activities	In this stage, learners agree on and select the activities that they will conduct to collect information.
Step 6: Collating Information	Discussing the collected data.
Step 7: Organization of Materials	It consists of developing the end-product of the project. The primary language skill practised in this phase is writing.
Step 8: Final Presentation	Presenting the final product to the whole classroom.

Table 2.7: The Eight Steps of PBL Development (Fried-Booth, 1986)

2.5.3.3. Fredricka L. Stoller Framework Model

Similarly, Stoller (2002) suggests ten steps of project development:

1. Learners and teacher agree on a theme.

2. Learners and teacher determine the outcome; they consider the nature of the project, its objectives, and the way it will be reported.
3. Learners and teacher structure the project. At this stage, learners should ask:
   a) What information is required to finalize the project?
   b) How can the information be obtained?
   c) How will the information be processed and evaluated once collected?
   d) What does each member of the group play in the evolution of the project?
   e) What timeline will the learners follow from the starting point to the end?
4. The teacher prepares the learners for the language demands of information gathering. If the learners are required to write a letter, for instance, the teacher can introduce letter formatting convention, and audience considerations, including the levels of formality and word choice.
5. Learners gather information.
6. The teacher prepares the learners for the language demands of compiling and analysing data.
7. Learners compile and analyse information; in one way, they weigh the collected data.
8. The teacher prepares learners for the demands of the culminating activity: the teacher helps the learners succeed into the final product through some class activities; such as, editing and revising the written report.
9. Learners present the final product.
10. Learners evaluate the project: they reflect on the content they learnt about the topic covered, the steps they followed to reach the final output, how effective their product is, and whether they will bring some changes next time (pp. 113-117).

The figure in the following page summarizes the ten steps of Stoller:

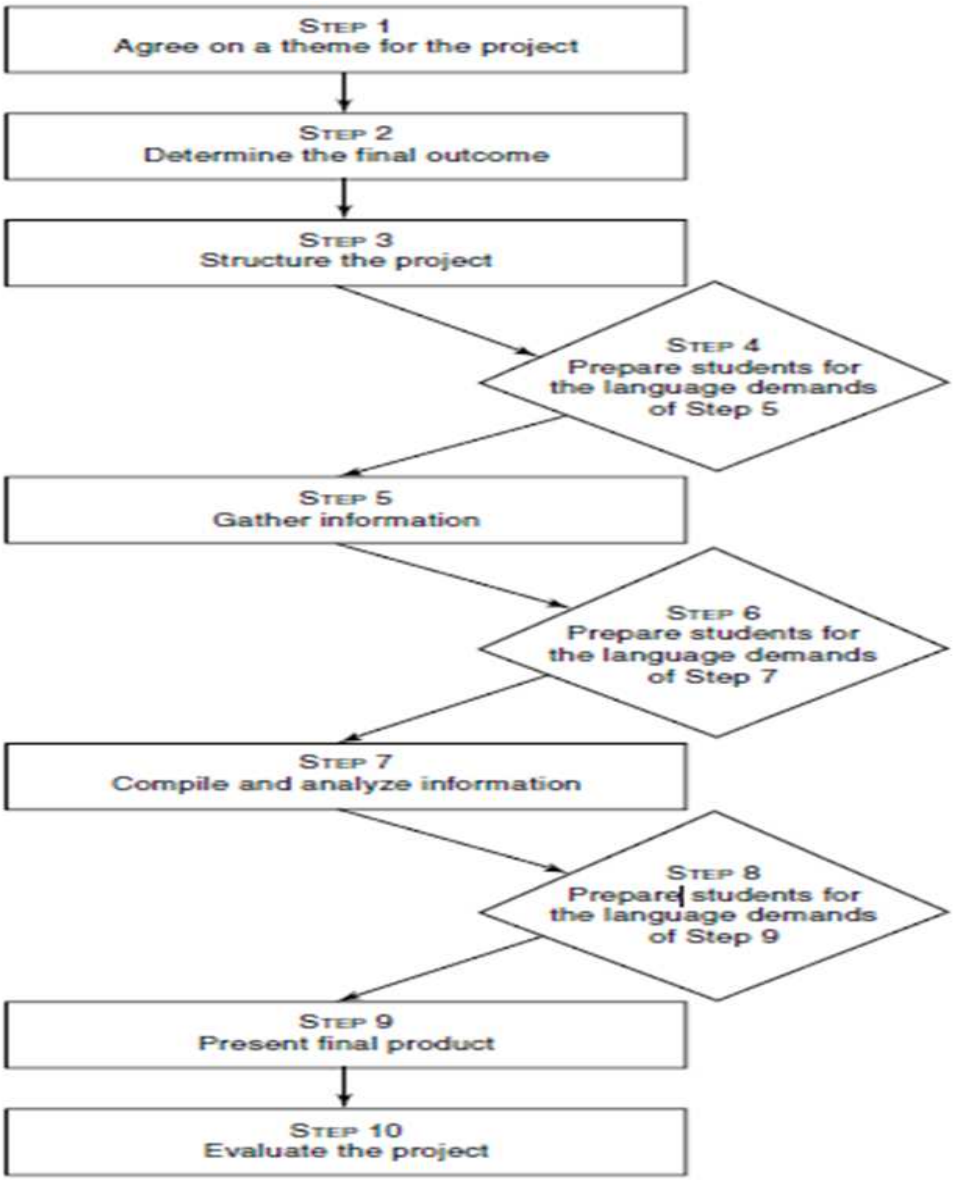

Figure 2.2: Developing a Project in a Language Classroom (Stoller, 2002, p.112)

2.5.3.4. Jeremy Harmer Framework Model

Furthermore, Harmer (2004) proposes the subsequent six steps designed for teachers and learners alike to reform a project:

1. Learners choose either a project topic on their own or a topic suggested by the teacher. Both the teacher and learners meet and discuss about the project objectives, the way data will be gathered, timing, the different project stages and the support they can receive all along the phases of the project.
2. Learners organize a briefing during which they generate ideas about the content of the project and the language items to be used.

3. Learners start collecting the needed data from various sources: books, encyclopaedias, magazines, Internet, interviews and many other useful sources.
4. Learners start preparing a plan of how the final product will be presented.
5. Learners, at this stage, finish drafting their work, and the latter can be given to other learners or the teacher in order to be edited.
6. Learners produce the end products and display them in their classroom, in the school library, or elsewhere so that other learners can see and read them.
7. Teachers, during all the phases of the project preparation, play the role of tutors; they are omnipresent for consultation, guidance, help and advice (pp. 103-104).

The complex, systematic, but flexible framework of PBL helps learners to prepare their projects and understand what is expected from them. The way the projects are structured helps teachers and learners to organize the development of a project activity based on learners' interests and personal contributions to the topics selected for the study.

PBL is a systematic methodology that can be implemented in classroom settings, including second language contexts. In a classroom, the development of PBL can be carefully used under a process that directs teachers and learners in organizing projects.

2.5.4. The Benefits of Project Work in Foreign Language Settings

PBL tends to be an equivalent or slightly better model for achieving academic achievement gains although those outcomes may differ from the project standard and the level of commitment of the learners. However, PBL is not suitable as a tool for teaching particular basic skills such as reading or computing; however, it does provide a framework for applying those skills (Markham et al., 2003, p.6). PBL gets children ready for the real world since they are exposed to a wide variety of skills and abilities such as collaboration, project planning, decision-making and time management. Thanks to collaborative learning learners can bounce ideas off each other, express their opinions and negotiate solutions - all the skills that are necessary for the workplace (Blank, 1997; Dickinson, 1998; Thomas, Michaelson, & Mergendoller, 2002). PBL also increases the motivation of the learners and "enhances the quality of learning and leads to higher-level cognitive development through the students' engagement with complex and novel problems" (Markham et al., 2003, p.6).

Many teachers consider PBL as an essential and useful part of their teaching repertoire, and a tool that can help them "create a high-performing classroom" (Markham et al., 2003), in which both the teacher and learners "form a powerful learning community focused on

achievement, self-mastery, and contribution to community" (Markham et al., 2003). A PBL lesson offers learners the opportunity to learn in a real, demanding, multidisciplinary environment, to learn how to plan, to execute and assess a project that needs concerted involvement over a considerable period of time, to learn how to work with limited external supervision, both personally and in communities, to achieve self-reliance and personal responsibility (Moursund, 1999).

Some studies also note that thanks to PBL, learners learn complex processes and procedures that will help them to plan, communicate efficiently, find solutions to complex problems and make the right decisions in the right moment. Those processes require time for both teachers and learners to master the behaviours and strategies necessary for successful PBL. It is worth noting that PBL brings multiple and essential benefits to the 21st century learners. According to Markham et al. (2003), teachers reported that PBL (1) manages successfully the separation between knowledge and thinking, which helps learners to "know" and "do."; (2) helps students to learn and put into practice their skills in problem solving, communication, and self-management; (3) fosters the development of the mind in relation to lifelong learning, social responsibility, and personal or career achievement; (4) includes curriculum areas, thematic teaching, and civic issues; (5) assesses the product and skills performance using the same criteria used in the professional world; therefore, accountability, aim setting, and improved performance are stimulated; (6) builds constructive interactions and collaborative partnerships between different groups of learners; (7) responds to learners' needs, taking into account their skill levels and their style of learning; and (8) boosts uninterested learners' engagement and motivation.

Westwood (2008) suggests that the project approach is beneficial, and it can be integrated into the curriculum for some reasons:

- Projects have a 'real world' orientation and enhance significant learning by associating new data to the learners' past experiences and previous knowledge;
- Learners learn significant procedures and skills for collecting and analysing information;
- Learners are decision-makers for their own learning, subsequently expanding self direction and motivation;
- The learning procedure supports different methods of communication and representation;
- The approach supports the use of higher-order thinking;
- The approach develops further information on the topic;

- The approach likewise expands group working and cooperative learning skills (pp.34-35)

As indicated by Stein (1995), project work combines interpersonal skills like collaborative teamwork, problem-solving, negotiating and other abilities. Learners have identified them as being very important for living fruitful lives. According to Beneke and Ostrosky (2009) the project work:

- Gives children numerous opportunities to explore significant phenomena
- Allows them to represent not only what they observe but also what they learn.
- Allows them to demonstrate their strengths using their knowledge, skills, and dispositions in ways that are helpful to others.

However, the full benefits of PBL cannot be achieved without considering the nature of both the learners' and the teacher's knowledge, motivation, the complexity of the classroom setting, and the teaching approach that focuses on helping learners develop particular competencies and skills. Allowing learners to plan their work collaboratively and autonomously, taking into account their choices and preferences of the project topics will certainly help them manage time efficiently, solve problems skilfully and develop their sense of responsibility. Once those criteria are available, a variety of benefits emerges from PBL classes. Learners become more active, engaged, enthusiastic and participative. Such characteristics raise their sense of creativity, productivity, volunteering and self-esteem. They no more learn by memorising and reusing again what they have learnt, but they instead use their higher-order thinking to solve real complex problems. Also, working in groups collaboratively allows them to agree, disagree, give an opinion, convince and negotiate – skills that are necessary for real-life contexts. While developing such skills, they become ready to face the world outside the classroom, solve real-life issues they may face and be productive and resourceful citizens.

2.5.5. Cooperative Learning and Project Work

Cooperative learning is an effective teaching methodology in which small groups, with learners of various levels of capability, use varieties of learning tasks to improve their comprehension of a topic. Every individual from a group is capable of not only learning but also helping other members to learn as well; as a result, goals are achieved collaboratively and cooperatively. According to Pritchard & Woollard (2010), cooperation and collaboration are two distinct phenomena, yet both of them are crucial to succeed in realising efficient projects, either written or oral. Artz & Newman (1990) see cooperative learning as small teams of

learners working together, collaborating to solve a problem, conducting a task, or achieving a common goal. Learners assist and interact with each other in solving problem situations.

Additionally, Johnson (1986) and Johnson & Johnson (1989) claim that cooperative learning and collaboration in problem-solving situations often engage a group of learners in completing a project. Both educational and social skills are improved when learning cooperatively. Nevertheless, teachers play an essential role in training learners for successful cooperative learning. In fact, instructing learners to work in groups does not mean that all the learners are engaged. Sometimes, only one learner does the work, and thus teachers should plan and organize interactive and collaborative tasks carefully and clearly define group tasks. In the same vein, Johnson and Johnson (1994) claim that "how teachers structure student-student interaction patterns has a lot to say about how well students learn how they feel about school and the teacher, how they feel about each other, and how much self-esteem they have." For successful group learning, Johnson and Johnson (1994) published five elements: positive interdependence, individual and group accountability, face-to-face interaction, interpersonal and small group skills and group processing. The excellent point about cooperative learning is that learners can eventually improve not only their learning skills but also their social, personal and higher-order thinking skills with which they can plan, organize, reflect, make decisions and solve problems. The figure below demonstrates those elements:

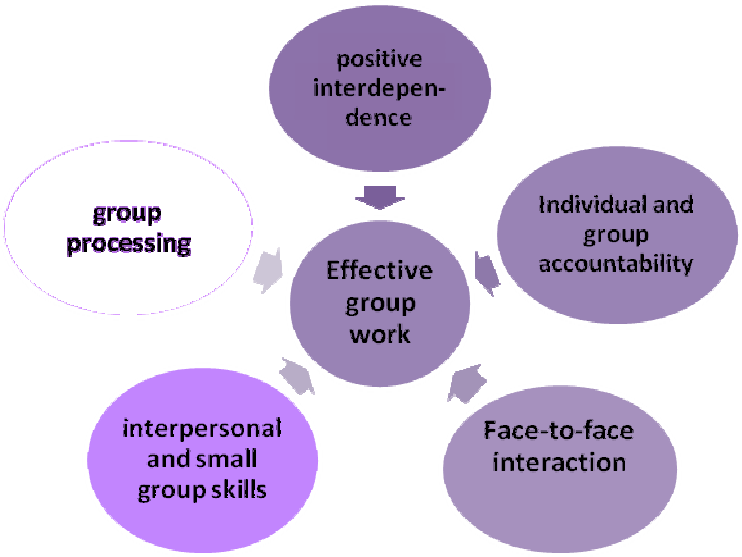

Figure 2.3: The Johnsons' Five Basic Elements of Effective Group Work (1994)

Accordingly, PBL yields an authentic environment in which mutual support between learners is the core characteristic of cooperation. Thus, learners become cognitively (i.e. explaining, telling…) and physically (i.e. giving, turn-taking...) skilful through collaboration. In

our view, cooperation, collaboration and group work are inter-related and inter-connected. Such combination fosters higher-order thinking skills.

As summed up by Vygotsky (1978):

> Every function in the child's cultural development appears twice: first, on the social level, and later on the individual level; first, between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formulation of concepts. All the higher functions originate as actual relations between human individuals (p.57 in Lock, 1989).

Similarly, MacMurray (1961) affirms that:

> [The human infant] cannot, even theoretically, live an isolated existence; he is not an independent individual. He lives a common life as one term in a personal relationship. Only in the process of development does he learn to achieve a relative independence and that only by appropriating the techniques of a rational social tradition (p.50).

Tretten and Zachariou (1995) conducted a study to measure the effectiveness of PBL, and they state that:

> Students, working both individually and cooperatively, feel empowered when they use effective work habits and apply critical thinking to solve problems by finding or creating solutions in relevant projects. In this productive work, students learn and/or strengthen their work habits, their critical thinking skills, and their productivity. Throughout this process, students are learning new knowledge, skills and positive attitudes (p.8).

So far, we can conclude that cooperation during group work is not just a matter of collaboration but it is also a means to develop learners' cognitive, social and communicative skills in a real-life context. Along this research, we aim to identify the importance of this methodology in fostering higher-order thinking skills.

2.6. Project-Based vs. Traditional Instruction

Education is the foremost concern to build new skills, knowledge and new generations for the future. Furthermore, it plays a vital role in enhancing people's creativity and productivity. Moving from a teacher-centred to a learner-centred classroom is a new challenge that has emerged in the educational systems. In addition, the emergence of the PBL teaching method has caught the attention of many educators and policymakers and has encouraged them to implement it in the education system. Both the traditional and project-based teaching methods have similar objectives in terms of learning new knowledge in a specific period of

time. However, the two methods differ in various ways, especially when it comes to life-long learning goals. To highlight the differences between traditional and PBL instruction, the table below illustrates the characteristics of each method:

Traditional Teaching Instruction	Project-Based Learning
Teacher-centred and teacher responsible for learning	Learners -centred, learners help each other and teachers just facilitate the learning
Transmitting knowledge to the group	Constructing of individual knowledge
Focuses on memorisation of material	Focuses on the understanding of content
Surface learning (a little about many concepts)	Deep learning (through an understanding of main concepts)
Learning out of the context	Authentic learning in a context
Individual learning	Group learning
Traditional assessment	Performance-based assessment

Table 2.8: Differences Between Traditional Teaching Instruction and PBL Instruction (Ziegenfuss, 2006 as cited in Nassir, 2014)

As illustrated in the table above, the focus of the Project-Based Learning Instruction is all on the learner, and the teacher is no more the source of knowledge but a guide and a facilitator. Also, peer interaction and collaborative learning skills are enhanced. However, in a traditional classroom the teachers' focus is on spoon-feeding learners with knowledge and thus transforming them into passive and less active agents. In other words, teachers transmit knowledge to test learners; whereas, in PBL instruction, teachers teach to improve learners' language and their cognitive and interactive skills. In such learning environment, learners develop critical thinking and problem-solving skills by integrating what they know to solve real-life problems.

2.7. Project-Based Instruction in EFL Context

Although the integration of PBL has been introduced for a long time with the emergence of the CBA as a new teaching method in the Algerian setting, it is not applied effectively in the field because of some hindrances. The major obstacle is the lack of professional training. Consequently, the traditional language classroom, in which the 21st-century skills like creativity, collaboration, communication and critical thinking are not enhanced, is still the core of teaching all around the country. However, as stated above in the literature review, if the project work instruction is adopted and adequately used, it will certainly

bring a positive effect on the learning process and increase learners' self-confidence. It will also boost their motivation, autonomy, cooperative learning and cognitive abilities. In EFL instruction, PBL is a methodology that enables the development of different skills such as language, cognitive, artistic and creative skills when used through authentic activities. The core objective of PBL instruction is that learners will be able to produce something new as a final product of the project.

Furthermore, as discussed earlier, the application of PBL in EFL settings has many advantages. According to many scholars, the process to the final product promotes in learners not only independence (Fried-Booth, 2002), self-esteem (Stoller, 2006) and autonomy (Skehan, 1998) but also collaboration, cooperation and social communication. In addition, it improves the language skills (Levine, 2004), which learners use to communicate in order to terminate authentic activities using the language in a quite authentic context (Haines, 1989). Indeed, real-world or authentic activities are the main focus of PBL. They help develop learners' higher-order thinking skills and problem-solving skills, which are effective in real-world contexts (Brown et al., 1993). Thus, it increases in them motivation, engagement and enjoyment (Lee, 2002) which, in turn, will promote learning (Brophy, 2004). In the same line of thought, Allen (2004) claims that projects improve critical thinking skills which are crucial because they are not only life-long skills but also a part of the settings outside the classroom.

PBL instruction requires learners to be involved in problem-solving activities. The latter provide meaning to the learning of learners who will move from simple memorisation of information to a higher cognitive learning level. PBL also allows teachers to integrate the cognitive skills of Bloom's Taxonomy, which are the primary objectives of most of the instructors. As far as the English language instruction is concerned, PBL enables learners to develop their oral and written productions during the project work process, and it also engages both learners and teachers in different roles. Therefore, the instruction paradigm shifts from a teacher-centred classroom to a learner- centred one where the teacher is a facilitator and a guide who provides scaffolding only when required. Thus, learners become responsible individuals engaged in learner-centred learning.

2.7.1. Teacher's Role within PBL

Methodology books enumerate many roles of a teacher, including that of a manager, organizer, controller, prompter, assessor, participant, resource and investigator. In PBL, the teacher's role is exclusive. The teacher has to cope with many hats in the PBL classroom. His

role “often shifts from ‘content expert’ to ‘supportive coach’ while students do project work” (Fleming, 2000, p.10). Frequently, teachers in PBL “invite and use open-ended questions; foster reflective discussion; respect and value diversity in learners and their questions; [...] seed student inquiry with powerful ideas and frameworks; and build assessment into the learning process” (Fleming, 2000). Moreover, they should support learners who might become discouraged by orienting them to the general timelines and phases of project exploration; they also can develop monitoring and scaffolding tools to help learners keep on task and on time. They should also help learners to complete long-term assignments effectively. In addition, they are requested to “develop clear and understandable rubrics that let students know how their performance will be rated” (Fleming, 2000, p. 9).

Most of the teachers often relate their role to that of a ‘project manager’. As such, they have a multitude of responsibilities, not the least of which is planning. As it is stated by Micheal Simkins et al. 2002:

> Many teachers find that the ultimate success of a project-based unit depends heavily on the thoroughness of advanced planning. Once projects are underway, teachers provide coordination to ensure that things go according to plan. They meet with student groups to review progress and discuss the quality of completed components or subsections. They refer students experiencing difficulty to other students who have previously faced and overcome a similar problem. When they notice more than one group struggling with the same difficulty, they may convene the whole class for an impromptu brainstorming session (p.101).

Furthermore, some general observations regarding the teacher's role in PBL are illustrated in Haines (1989). The particular principal factor in successful project work is the teacher's conviction and dedication to this methodology. Then it must be guaranteed that learners are mature enough to work in this manner and prepared meticulously in advance. The faculty of self-and peer-correction should be taken into consideration also. Haines states that during the realization of a project, the teacher should be a reference source, but not the sole one. However, by the end of the project, learners need to understand that accuracy is important to the communicative effectiveness of their work and 'end product language' should be as perfect as possible (Haines, 1989). Besides, PBL Handbook defines the teacher's role as follows:

> At the heart of successful PBL is your ability to support and direct students. [...] This requires interpersonal and communication skills, as well as the ability to define the agenda for the class and push a project through to a successful conclusion. It also

includes being sensitive to the fact that students finish work at different rates, with different abilities, aptitudes, and learning styles (Markham et al. 2003, p. 9).

2.7.2. Learner's Role within PBL

Since PBL is learner-centred, it encourages learners' voice and choice and gives them more independence and responsibility in their learning. Besides, an excellent project work is challenging since it requests learners to do more than they think they are competent to do to apply knowledge instead of only getting through it. Learners ought to reveal what they have learnt (content), what they can do (demonstrate), and what new skills they have built up. In PBL, "the role of the student shifts from "recipient of information" to "maker of meaning" (Fleming, 2000, p.8). Learners copy the approaches, methods, materials, roles and languages used by professionals and use them to solve problems in real-world contexts. Comprehensible principles and standards permit learners to duplicate repeatedly what they learn on their work.

Furthermore, class discussions, talks with the teacher, assessment sessions and peer reviews help learners make regulations that will develop the overall quality of their project. During these talks, interactions and activities, learners must make many resolutions about what is important to them and their intention. They might assume more considerable responsibility for establishing resources or presuming group team roles like facilitators, timekeepers, reporters, or recorders. They often present the final product, performance, exhibition, or demonstration to an audience.

2.8. The Project-Based Syllabus and Textbook

The Algerian secondary-school educational cycle is based on the competency-based approach and thus the English syllabuses and textbooks at this level embrace its methodology. The major element in the CBA is the project pedagogy, so the two documents highlight and recommend the adoption of this pedagogy. Although that is the case, teachers are reticent and do not give adequate importance to the project pedagogy, and that is what this research has confirmed. This is apparently due to the misconceptions they hold concerning the usefulness of the two documents and especially the syllabus. Therefore, the following subsections will clear up those misconceptions and give detailed information about the syllabus and the textbook in relation to project pedagogy.

2.8.1. Definition of the Syllabus

Teachers and educators may get confused between curriculum and syllabus, and they may use them interchangeably. Allen (1984) states that the syllabus refers to "that subpart of

curriculum which is concerned with a specification of what units will be taught" (p.61). In the same line of thought, Dubin and Olshtain (1986) stress the point that they are two distinct documents. The syllabus, according to them, is "a more detailed and operational statement of teaching and learning elements which translates the philosophy of the curriculum into a series of planned steps leading towards more narrowly defined objectives at each level". As for the curriculum, they consider it as "a broad description of general goals by indicating an overall educational-cultural philosophy" (pp.34-35).

Various definitions are put for the term 'syllabus'. It is generally defined as "[...] a statement of what should be taught, year by year-through language-syllabuses often also contain points about the method of teaching and the time to be taken" (Lee,1980, pp.81-85). It has also been defined as "a plan of what is to be achieved through teaching and learning" (Breen, 2001, p.151). Hutchinson and Waters (1987) define it as "a statement of what is to be learnt" (p.80). Furthermore, McKay (1978) claims that "a syllabus provides a focus for what should be studied, along with rationale for how that content should be selected and ordered" (p.179). In the same vein, Widdowson (1990) asserts that the syllabus is "[...] the specification of a teaching program or pedagogic agenda which defines a particular subject for a particular group of learners" (p.138). As for Cunningsworth (1995), he describes the notion as being "a specification of the work to be covered over a period of time, with a starting point and a final goal" (p.54). According to Rabbini (2002), the syllabus is "an expression of opinion on the nature of language and learning; it acts as a guide for both instructor and learner by providing some goals to be attained" (p.1).

According to Dubin and Olshtain (1986), a syllabus is a document that embodies "a more detailed and operational statement of teaching and learning elements which translates the philosophy of the curriculum into a series of planned steps leading towards more narrowly defined objectives at each level" (p.35). Moreover, they suggest a kind of framework for the analysis of a syllabus in the form of questions:

1) What are learners expected to know at the end of the course?
2) What is to be taught or learnt during the course? (Designed in the form of an inventory of items)
3) When is it to be taught, and at what rate of progress?
4) How it is to be taught? (Includes the procedures, techniques, and materials to be used)
5) How is it to be evaluated? (Includes the testing and evaluating procedures)

Finally, in explicit terms, a syllabus in language teaching requires the integration of the subject matter (what to teach) with the linguistic subject matter (how to teach). It also serves as a reference for both instructors and learners by setting specific targets to be accomplished. Indeed, the syllabus deals with the linguistic theory and theories of language learning and how they are employed in the classroom.

2.8.2. Project-Based Syllabus

Before dealing with the project-based syllabus, it is important to shed light on the different types of syllabuses used in language teaching. There are different types of syllabuses: structural, functional and notional, skills, communicative, and task-based syllabuses. Continuous attempts have nevertheless been made to classify them into two major strands: synthetic and analytic syllabuses. Thus, language teachers and syllabus designers can select from those two broad categories of syllabuses. This dissimilarity between the two categories has been advanced by Wilkins (1976) and reflected by White's (1988) type A and Type B syllabuses as a second classification. White (1988, p.45) says that in relation to language teaching syllabuses, those two aspects might be highlighted in terms of the distinction between an interventionist approach that prioritizes the pre-specification of linguistic or other material or ability objectives, on the one hand, and a non-interventional, experiential, 'natural growth' approach on the other hand, “which aims to immerse the learners in real-life communication without any artificial pre-selection or arrangement of items” (Allen 1984, p.65). Wilkins (1976) clarifies the difference between synthetic and analytic syllabuses for the language classrooms. The synthetic syllabuses, which are similar to type 'A' syllabuses in White (1988), divide the target language into separate linguistic items for presentation one at a time. In this vein, White states that:

> Different parts of language are taught separately and step by step so that acquisition is a process of gradual accumulation of parts until the whole structure of language has been built up [...] At any one time, the learner is being exposed to a deliberately limited sample of language. The language that is mastered in one unit of learning is added to that which has been acquired in the preceding units (p.2).

Additionally, Wilkins (1976) maintains that the language learning process is considered as a gradual accumulation of linguistic rules and items, in the most extreme direction of command of the second language. It is understood that the learner can learn a language as separated parts and then integrate them when necessary for communicative purposes usage. In such syllabus type, Wilkins (1976) also points out that the learner's role is "to re-synthesize the

language that has been broken down into a large number of small pieces with the aim of making his learning task easier". Synthetic approaches to syllabus design exemplify several habitual or conventional language courses and textbooks. Synthetic syllabuses are mostly situational and topical, structural, lexical, notional, and functional (Long & Crookes, 1992; Long & Robinson, 1998).

On the other hand, the analytic syllabus is non-interventionist and experiential. It aims at immersing learners in real-life language use (Beglar & Hunt, 2002 in Richards & Renandya, 2002, p.96). In the same vein, Wilkins, (1976) refers to it as being "organised in terms of the purposes for which people are learning language and the kinds of language performance that are necessary to meet those purposes" (p.13). It means that if the communicative reasons for language learning are identified before designing the syllabus, the necessary parts of language the learner needs can be specified and thus allowing the learner to achieve the target purposes.

White (1988) recapitulates the main points about analytic syllabuses. He states that they focus more on how the teaching materials are learnt: a process-oriented approach. They also put emphasis on the teacher-learner negotiation. In addition, they install a more cooperative atmosphere than the traditional teacher-centred approach.

Nunan (2004) stresses that project-based syllabus stands under the analytic syllabuses. The latter focuses more on the process of the activities and the tasks conducted in the classroom and which lead to the completion of a project at the end of a unit. Those syllabuses focus mainly on how learners attain the completion of their tasks and ultimate projects (Alan and Stoller 2005:10-21).

According to Finch (2007), PBL "can be seen as a special application of the process syllabus, exemplifying process and task-based ideas." Learning experiences are by no means vital, and thus teachers should involve tasks and activities that stimulate learning. Another crucial point is the process and product of the syllabus, but this point remains up for discussion in this dissertation. What is important to accentuate is the fact that the project-based syllabus focuses on the process and not on the final product of learning only.

In applied linguistics, the word 'process' has come to be used mainly in relation to the process of writing and syllabus design although it can be argued that the use of the word is not the same in these two areas. The survey of syllabus design done by White is founded on a distinction between what he calls Type A and Type B syllabuses. The former are product syllabuses and are "based on the pre-specification of content" (White, 1988, p.94). However,

the process syllabus -Type B- in contradistinction focuses on the "processes of learning and procedures of teaching – in other words [on] methodology" (White, 1988). However, Finch (2000) gives another view on the syllabus and claims that:

> Project-based syllabi have a strong process dimension, but they are also notable for the product which emerges from the process (e.g. oral presentation, drama, written report). This product is seen as a part of the process continuum (a means rather than an end), useful for feedback (and therefore opportunities for assessment) which it gives to the learners concerning their progress.

The foremost person who makes an understanding of the syllabus is typically the material writer, i.e. syllabus designers (Hutchinson and Waters, 1987). The textbook represents one of the materials, which reveals the fundamental suppositions of the syllabus and which is at the service of teachers and learners.

2.8.3. Project-Based Textbook

English language education has many essential components; however, the textbooks and instructional materials used by language teachers are the fundamental constituents for many ESL/EFL programmes and classrooms. Textbooks are considered as "the visible heart of any ELT programmes" and they "offer considerable advantages" (Sheldon, 1988, p.237). As suggested by Hutchinson and Torres (1994): "the textbook is an almost universal element of ELT teaching. Millions of copies are sold every year, and numerous aid projects have been set up to produce them in [various] countries[...]No teaching-learning situation, it seems, is complete until it has its relevant textbook" (p.315).

Textbooks offer substantive advantages for both the learner and the teacher when they are being used in the EFL classrooms. Haycroft (1998), for instance, points out that one of the chief advantages of using textbooks is that they are psychologically necessary for learners since their progress and accomplishment could be concretely measured when they use them.

Furthermore, learners often harbour expectations about using a textbook in their language classroom and programme. They also believe that published materials have more credibility than teacher-generated or "in-house" teaching materials (Sheldon, 1988). In addition, textbooks can reduce potential professional overload and give teachers the opportunity to spend their time undertaking other worthwhile follow-ups (O'Neill, 1982 & Sheldon, 1988).

Moreover, Hutchinson & Torres (1994) point out that textbooks may play a pivotal role in innovation. They recommend that textbooks can support teachers through potentially

disturbing and threatening change processes, demonstrate new or exploratory methodologies, make necessary changes progressively and generate scaffolding upon which teachers can innovate their methodology and make it more creative. Broadly speaking, textbook serves as the basis for much of the language input learners receive; a source of activities for learners' practice in the classroom; a reference source for learners on grammar, vocabulary, pronunciation and many other language components; a source of stimulation and ideas for classroom language activities; and a syllabus.

Stressing the importance of the textbook, Hutchinson & Torres (1994) state that “no teaching-learning situation, it seems, is complete until it has its relevant textbook” (p.315). As far as the project-based textbook is concerned, it contains units in which many tasks and activities are involved so as to lead to the final task, namely the project work. In this study, we aim to clarify the process and the methodology the teacher should apply to deal with the units presented in the textbook. Many EFL settings, including the Algerian one, place a serious trust in this instructional material. The textbook displays the syllabus content and reflects its prearranged learning objectives and guidelines.

2.9. Conclusion

This chapter has been mainly concerned with the exploration of the theoretical side of PBL and the different aspects of the project pedagogy. Its importance in giving both learners and teachers new roles has been clarified, and thus learners are no more regarded as agents who depend totally on their teachers whose roles as spoon feeders are discarded. Besides, the aim behind PBL is to assist teachers in incorporating project work methodology effectively to reach a new dimension in the field of teaching. The new role, teachers are urged to take, is summarized in the following quote: "Stop teaching; let them learn". The chapter also suggests some efficient models, which help to apply the project work methodology in the EFL classroom. Besides, it defines the two official teaching tools, namely the syllabus and the textbook to make them the centre of attention because they instruct teachers in applying the CBA and thus the project work method. To find out and highlight the importance of the project work in classrooms for the enhancement of learners' critical thinking, this research has adopted mixed methods research procedures which the next chapter will discuss in detail.

Chapter Three

Research Methodology

Chapter Three: Research Methodology

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3.1. Introduction

This chapter aims at illustrating the research design and methodology used in this study. It provides an overview of English status in the Algerian secondary school and a consecutive description of the Algerian third-year secondary school syllabus and the *New Prospects* textbook. It provides introduces the setting of the research, the population's profile, the research framework and the data collection tools. To ensure the validity and reliability of the research findings, the researcher used the mixed methods approach, combining elements of qualitative and quantitative data collection methodologies. Therefore, the data collection was carried out utilizing content analysis, class observation, a field experiment and questionnaires for both teachers and learners.

3.2. Aims of the Study

The present study aims at revealing the extent to which the notion of critical thinking is enhanced in Algerian secondary schools. Furthermore, the objective of this research is to achieve a substantial perception of PBL and critical thinking by examining the teachers' beliefs, attitudes and awareness of these concepts. It also highlights the extent to which the teachers' views on promoting critical thinking in their classrooms is reconsidered. The results of this research would anticipate an important understanding of how critical thinking is understood, fostered and applied in ELT in the Algerian secondary education context through the key task, namely the project work. Elaborating critical thinking is an absolute necessity for all EFL learners for instructive tasks as well as for regular daily life. Therefore, the implementation of project-based learning methodology, collaboration and group work in the classroom can enhance and promote the accomplishment of this objective. To conduct this research, a number of aims are set as a plan for this investigation. Those aims are as follows:

1. raising teachers' awareness about the importance of developing the critical thinking skill like any other skill;
2. stressing the importance of using cooperative/collaborative work and projects in EFL classrooms;
3. investigating the perceived impact of using cooperative/collaborative work and projects in EFL classrooms to enhance critical thinking;
4. suggesting a practical course design for teachers' professional development to improve their perception of critical thinking as a crucial skill to adopt in their teaching;

3.3. The Status of English in the Algerian Educational System

The case of teaching a foreign language in Algeria is straightforwardly identified with historical, social or political events. The use of the French language was due to 132 years of French colonization, and after achieving independence in 1962, the Arabic language prevailed an essential place in the Algerian society pushing the Algerian government to start the process of Arabization. However, the country was not prepared for language planning, and this was due to some political events. Benrabah (2002) cited in Ben-Rafael & Stenberg (2002) states that:

> Among all Arabic-speaking countries, Algeria was undoubtedly the least prepared national community for this kind of language planning. The significant lack of means was simply an enormous handicap because French colonialism had eradicated almost all traditional structures that had existed before 1830 (p.239).

Additionally, the Algerian educational framework experienced significant changes after the independence in which English was given more significance and more importance because of Globalization, thus it has become a compulsory subject in the curriculum and a second foreign language in the educational system after French. To highlight the predominance of the English language, Kitaok (1996) states that:

> English is the primary language of news and information in the world. It is the language of business and government even in some countries where it is a minority language. It is the language of maritime communication and international air traffic control, and it is used even for internal air traffic control (p.1).

Presently, it is worth saying that the use of English in this ever-contracting worldwide network is getting progressively significant. English is essential since it has become the language of the 'New Media' (Satellite TV, and the Internet). It is spoken by around 1.5 billion individuals and is the language of global correspondence in business, innovation, sports, travel and diversion (Tiersky and Tiersky 2001).

In this way, the prominence of teaching English is turning into a vital piece of instruction everywhere throughout the world. As far as Algeria is concerned, the acknowledgement of the MNE of the developing significance that English, nowadays, plays in the world can be perceived.

In 2001, the MNE started the instructive reform and various changes took place concerning the circumstance of teaching English. Since it is considered as the most spoken language in the world and also the language of books, science and technology transfer,

international business and Internet communication (Graddol, 1997), it has been given an impressive consideration within the instructive reform. In this context, Huling (2004) states that the fact of "having a tri-lingual culture (French, Arabic, and Berber), Algerians possess a remarkable facility for language acquisition, which they are increasingly directing toward English" (p.1).

On the field, the MNE introduced English in the middle school when learners are eleven years old. At this level, they learn English for four years and then they move to the secondary school where they carry on studying that language for three other years. In this vein, new syllabuses, textbooks and accompanying documents were designed and distributed to all the schools of the country.

Within that reform, a new pedagogical teaching approach has been adopted, namely the Competency Based Approach (CBA), and all the teaching documents have adopted its methodology. However, the adopted reform caused heated controversy ever since it was introduced. According to Bouhadiba (2015), the implementation of the Competency-Based Language Teaching has been subject to some controversies and its objective "seems to turn nowadays into a source of tensions and even divergences between decision makers, inspectors, teachers, pupils and parents" (p.5). Additionally, the fact that English has been given the position of a second foreign language in the educational framework, it is actually taught as a subject for which learners will be tested and must have good marks in order to pass the 'vital' baccalaureate exam.

3.4. Teaching English in the Algerian Secondary School

The Algerian MNE approved the English syllabus of the secondary school in 2006, and a wide range of objectives and aims were presented in order to be achieved in the three years of secondary school. At this level, the teaching of English involves not only the acquisition of linguistic and communicative skills but also the development of transversal skills: methodological, technological, cultural, and social.

For the MNE (2006a), the aim of teaching English is to help the Algerian society to integrate harmoniously into modernity by participating fully and entirely in the linguistic community that uses this language for all types of interaction. This participation, based on the sharing and exchange of ideas and scientific, cultural and civilizational experiences, will allow a better knowledge of oneself and of the other. With the emergence of the new approach, namely the CBA, the emphasis has been put on learners to ensure that they are acquiring the

necessary knowledge and skills that are essential for succeeding in school, higher education, professional and adult life. Accordingly, the Algerian secondary education moved from a teacher-centred to a learner-centred instruction. Nevertheless, EFL learners are still accustomed to the spoon-feeding approach, which is the core element in the traditional instruction that still exists in many classroom settings all around the country. That is due mainly to the lack of engagement in the teaching/learning process. In the Algerian secondary schools, learners still do not recognise the importance of learning the English language and they consider it only as a *subject*. Only the literary streams learners find it necessary to study English because they need it for future studies. While, the scientific streams learners are only focusing on the "essential" subjects, as they call them, such as physics, science and mathematics. However, these views should change, and learners should set more long term goals. Accordingly, teachers are urged to adapt their instruction according to the 21st century requirements and plan their teaching to:

- Help learners achieve competency and meet the expected standards;
- Assist learners with advancing self- learning and critical thought;
- Promote learners' higher-order thinking skills of examining assessing, and synthesizing;
- Enable learners to use English reports, in new circumstances at work;
- Urge learners to acknowledge other cultures, to learn to be tolerant and open-minded;
- Raise learners' awareness about the prominent place the English language has in the world and subsequently prepare them to be autonomous and self-confident.

It is worthy of referring to these aims and objectives set by the Ministry of Education as tools that offer open doors for instructors to make them ready for embracing an intercultural education methodology to spread tolerance among learners. To sum up the whole matter, the teaching of English in the Algerian secondary school aims at not only achieving the significant objectives designed by syllabus designers but also enabling learners to use English as a means to represent their country and cultural principles which are an essential step to modernity and Globalization.

3.5. Description of the Third-Year EFL Secondary School Syllabus

This section provides a description of the third-year syllabus whose main sections are illustrated in the following table:

Syllabus Sections Outline	Sections Description
1. Introduction:	Presentation of the aims of teaching English at the secondary level.
2. General objectives of the teaching of English in 3rd year secondary school. (*Objectifs de l'enseignement de l'anglais en 3ème AS*)	Description of the three main objectives set by the syllabus designers: a) Linguistic and communication objectives; b) Methodological/technological objectives; c) Socio-cultural and socio-professional objectives.
3. Entry profile in 3rd-year secondary school (*Profil d'entrée en 3ème AS*)	Description of the academic profile of the learner before starting the 3rd-year English programme.
4. Final Integration Objective: FIO (*Objectif Terminal d'Intégration (OTI*)	This section illustrates the main aim that should be achieved at the end of the three years in secondary school: The learner is supposed to be able to produce a descriptive, narrative, argumentative, expositive or injunctive written passage of twenty lines correctly.
5. Competency-based approach: a pedagogy of integration (*L'approche par les competence: une pedagogie d'integration*)	This part elucidates the integration of CBA in the third year and its importance in terms of : a) giving meaning to learning; b) preparing for subsequent learning.
6. Competencies/skills to be mastered in 3rd-year secondary school (*Compétences à maîtriser en 3ème AS*)	Description of the three primary competencies to be mastered at the end of the 3rd year secondary school: Interacting orally, interpreting messages, and producing written messages in the types mentioned above.
7. Competence resources (*Ressources de la compétence*)	This section represents the resources used to practise the competencies dealt with in section 7: a) Project outcomes and learners' outcomes b) Language outcomes c) Skills and strategy outcomes d) Technological and computer skills e) Intercultural outcomes/ social skills/ outcomes.
8. Proposed projects for the two streams (*Projets proposés en communs aux deux*	This section represents the projects/units and the themes that should be tackled for each stream,

filières) 8.1. Description of the projects in terms of resources (*Description des projets en termes de ressources*) 8.2. Structure of projects and sample activities (*Structure des projets et exemples d'activités*)	four (04) to five (05) projects per stream in a year (see Appendix D). It also introduces the outcomes to be attained and the language items to be taught (see Appendix E).
9. Assessment of learning (*Evaluation des acquis*) 9.1. Types of assessment (*Types d'évaluation*) 9.2. How does the prior learning assessment work? (*Comment fonctionne l'évaluation des acquis?*) 9.3. Management of evaluation criteria (*Gestion des critères d'évaluation*)	This section entails the assessment process and its types: Diagnostic, formative and summative.

Table 3.1: Description of the Third-Year EFL Secondary School Syllabus Content

The table above illustrates the main points to be dealt with in the syllabus. Similarly, the accompanying document entails the same points in details to help teachers put them into practice. In this study, only the project work part will be given considerable importance.

3.6. Description of the Third-Year EFL Secondary School Accompanying Document

The following table summarizes the content of the third-year EFL secondary school accompanying document and gives a brief description of each section:

Accompanying Document Sections Outline	Sections Description
Introduction:	Presentation of the aims of teaching English at the secondary level.
1. The aims and values recommended by the program designers. (*Finalités et valeurs préconisées par le programme*)	English teaching in Algeria aims at: a) Developing the Algerian learners across all dimensions; b) Advocating learners' openness to the world, respect for oneself and others as well as tolerance
2. a) Entry profile in 3rd-year secondary school (*Profil d'entrée*) b) Exit profile at the end of 3rd-year	a) The learner has already been learning English for six years; therefore, s/he can produce a coherent statement. b) At this level, the learner is capable of producing a coherent, correct and structured

secondary school level (*Profil de sortie*)	descriptive, narrative, argumentative, expository and prescriptive oral or written message/text.
3. Characteristics of the programme: (*Les Caractéristiques du Programme*)	This section describes the characteristics of the 3rd-year secondary programme: – Skills to develop among learners; – Teaching guidelines for teachers.
4. General Presentation of the Discipline (*Présentation Générale de la Discipline*)	This part gives details about the following: 4.1) The teaching approach: CBA; 4.2) Detailed definition of learning: teacher/learner's roles; 4.3) The learning process; 4.4) The method: learner-centred, problem solving, real-life learning and project-based; 4.5) The project work methodology: starting off the project, building the project and presenting the project; 4.6) Learning styles: visual, auditory & kinesthetic: 4.7) Teaching styles: group/individual work; 4.8) Teacher's role and teaching strategies: teacher as a facilitator; learner as an actor.
6. Learner's role and learning strategies (*Rôle de l'élève et stratégies d'apprentissage*)	a) Learner's role: autonomous, active, responsible for his/her learning, cooperative and motivated; b) Learning strategies: cognitive, metacognitive and resource management strategies.
7. Assessment (*Evaluation des apprentissages*)	7.1) Diagnostic assessment: by the teacher at the beginning of the year; 7.2) Certificative assessment: by the school or the ministry of education; 7.3) Formative assessment type 1: by the teacher during the teaching/learning process; 7.4) Formative assessment type 2: by the teacher & learner during the teaching/learning process; 7.5) Regulation of learning: related to formative assessment.
8. The learning related to the discipline and the resources of the competence (*Apprentissages propres à la discipline et aux ressources de la compétence*)	This section gives a detailed overview of the resources to be used to help learners build the target competencies and learning outcomes that learners will be expected to master by the end of the third secondary school year.
9. The situation of "integration" example	This section provides teachers with guidelines

(*Exemple de situation d'intégration*)	and examples on how to the written expression phase and its assessment.

Table 3.2: Description of the Third-Year EFL Secondary School Accompanying Document Content

In addition to the syllabus, the accompanying document gives practical directions with details on how to put into practice the third-year secondary school English syllabus content. It eventually clarifies the following points:

- The aim behind the teaching of English and the intended values learners should acquire from the programme;
- The third-year general objectives;
- The entry profile learners have before starting the third-year secondary school programme;
- The exit profiles to be attained at the end of secondary school education;
- The approach to be adopted: Competency-Based Approach;
- The competencies learners will develop during the third-year secondary school education;
- The resources to be used to help learners build the target competences;
- The project pedagogy and the proposed projects for the third-year learners;
- Assessment types and the methodology to adopt to assess learners' learning.

3.7. Description of the Algerian EFL Secondary School Textbooks

To highlight the interrelationship between the first, second and third year secondary school programmes and textbooks and investigate the prominent place the competency-based and the project-based methodology has been given, the researcher opted for a deep description of the three secondary school English textbooks.

3.7.1. *At the Crossroads* Textbook

At the Crossroads English textbook is intended for the first year secondary school learners. It conforms to the suggestions given in the new prospectus for SE1 as spread out by the 2005 national English curriculum. The general point of the textbook as kept up by its writers is to merge and expand the three competencies, namely interaction, interpretation and production already tackled at the level of middle school.

At the Crossroads comprises five educational /academic units (MNE 2005a):

Units	Titles
Unit 1	Getting Through
Unit 2	Once Upon a Time
Unit 3	Our Finding Show
Unit 4	Eureka
Unit 5	Back to Nature

Table 3.3: *At the Crossroads* Textbook Units

Each unit includes four sequences and three sections (MNE 2005a), as shown in the following figure:

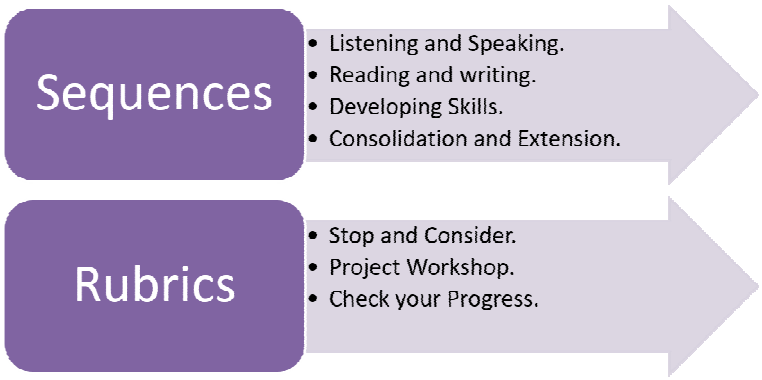


Figure 3.1: *At the Crossroads* Textbook Sequences and Sections

❖ *Sequence One: Listening and Speaking*

This sequence involves a set of exercises aiming at getting the students to build up their listening and speaking aptitudes. It comprises four rubrics:

• *Anticipate:*

This rubric includes tasks in which learners are asked to look at pictures and answer questions related to the general theme of the unit and make expectations before listening to the script.

• *Listen and Check:*

In this rubric, learners are asked to listen to a listening script and check whether the answers they give in the *Anticipate* rubric are correct or wrong. That can develop their listening skill and capacity to perceive the sounds of the English language.

• *Say It Clear:*

Intonation, stress patterns and spelling are the main focus of this rubric in which learners are exposed to different types of tasks.

• *Your Turn:*

It involves tasks to be done either in pairs, groups or individually. Those tasks offer a variety of speaking opportunities to learners in order to enhance their speaking skill.

❖ *Sequence Two: Reading and Writing:*

Throughout this sequence, learners share thoughts through speaking and writing about issues in different topics: communication, journalism, pollution and science. Like sequence one, the *Reading and Writing* sequence pursues a similar pattern and contains the following rubrics:

• *Anticipate:*

Learners in this early stage are supposed to make predictions and set hypotheses before reading the text.

• *Read and Check:*

Learners are given the opportunity to test the predictions they made through reading comprehension tasks.

• *Discover the Language:*

With the help of the proposed texts, learners are assigned tasks in which they are asked to extract the grammar points, either at the level of sentences or paragraphs and thus identify the language items to be learnt and discover how language functions.

• *Write It Right:*

This rubric aims at getting learners to produce restricted yet significant compositions by drawing upon what they have learnt in the previous rubrics.

❖ *Sequence Three: Developing Skills:*

This sequence targets the development of learners' four primary skills: listening, speaking, reading and writing. It sets various problem-solving tasks like writing specific letters of application, telephoning and conducting a meeting.

• *Stop and Consider:*

The *Stop and Consider* section comprises grammar tasks followed by a reminder box in which learners apply the grammar rules mentioned and then do the tasks.

❖ *Sequence Four: Consolidation and Extension:*

This sequence is subdivided into two rubrics: *Write it out* and *Work it out*.

- *Write It Out:*

A variety of tasks are proposed in this rubric the aim of which is to consolidate the four skills, especially writing.

- *Work It Out:*

It places learners in real-life problem-solving situations like tasks about telephoning, and it also stresses the point of pronunciation in learning English. As far as this rubric is concerned, syllabus designers claim that it deals not only with language points but also with social skills that might be a handicap in communication in the English language.

- *Project Workshop:*

Here, learners are asked to do projects in which they are supposed to invest all that they have learnt throughout the unit. It likewise furnishes them with a sample project and an agenda of directions to follow in the realization process of the project.

- *Check Your Progress:*

This rubric embeds different activities which aim at making learners evaluate their learning.

3.7.2. *Getting Through* Textbook

Getting Through is an official textbook designed for the second year secondary-school learners. It comprises eight units each of them tackle a specific theme. The following table illustrates the order in which the units appear in the textbook:

Units	Themes/topics
Signs of the Time	Diversity/ lifestyles
Make Peace	Peace and conflict resolution
Waste not, Want not	Poverty and World Resources
Budding Scientist	Technology and Innovation
No Man is an Island	Disasters and Safety
Science or Fiction + News and Tales	Technology and the Arts
Business is Business	Management and Efficiency

Table 3.4: *Getting Through* Textbook Units (see Appendix F)

Each unit of the book contains five main parts entitled:

1- Discovering Language;

2- Developing Skills;

3- Putting Things Together;

4- Where Do We Go from Here?;

5- Exploring Matters Further (MNE, 2006b).

Before moving towards the fundamental parts of every unit, learners should consider the *Think It Over* rubric, which get them acquainted with the theme of the unit by introducing to them a rundown of deciphered words. The latter will enable them to conceptualize and predict the unit theme. The rubric is also considered as a brainstorming phase where the instructor can be mindful of the learners' insight about the theme of every unit.

❖ *Discovering Language:*

It Includes vocabulary, grammar, spelling and pronunciation. This sequence aims at introducing the English language constituents, and it is found in each unit. It also contains the following rubrics:

• *Before You Read:*

This rubric helps learners set hypotheses and predictions by analysing the given pictures that are related to the topic of the unit.

• *As You Read:*

Learners, in this phase, are asked to check their answers to the questions asked in the previous rubric through reading texts.

• *After Reading:*

It focuses on the presentation of specific grammatical items through a section entitled *Grammar Desk* in the form of statements followed by questions. These help learners discover and deduce the grammatical rules by themselves.

• *Practice:*

Learners in this part put into practise and consolidate what they have already learnt in grammar, vocabulary and pronunciation.

• *Say It Loud and Clear:*

It contains a set of tasks to develop learners' pronunciation skills.

• *Working with Words:*

As the title shows, this rubric is concerned with learning new vocabulary through a set of tasks.

❖ *Developing Skills:*

This stage deals with building both language and intellectual skills by using some thinking skills such as anticipating, making hypotheses, analysing, synthesizing and evaluating learning. Two main sequences are presented in this section:

- *Listening and Speaking:*

Learners are required to listen to their teacher, simulating a dialogue or text and do activities. While listening, they take notes and pick out the correct answers to the questions asked.

- *Reading and Writing:*

Learners develop their reading and writing skills through tasks. It contains the following rubric:

– *Write It Out:*

This sub-rubric focuses on using correct grammar at the word, sentence and text levels.

❖ *Putting Things Together:*

This part is concerned with the project map. It allows learners to combine primary and social skills and thus display their own findings in order to start working on the final product: the project.

❖ *Where Do We Go from Here?:*

This fourth rubric of the unit is devoted to learners' self-evaluation. It contains activities requiring learners to check their progress in learning.

❖ *Exploring Matters Further:*

This last part of the unit includes three to five texts related to the sub-themes of the unit and taken from authentic books, newspapers, magazines and many other sources. These enable learners to acquire more vocabulary, consolidate their grammar structures and broaden their knowledge. It also offers learners the opportunity to discover different kinds of writings like newspaper articles, poems, letters and advertisements.

3.7.3. *New Prospects* Textbook

In agreement with the general objectives set to ELT and learning in the Algerian English Framework (AEF), and in order to respond to the teachers' and learners' needs, a new syllabus was needed to organize and grade the contents. So, the newly designed syllabus for the SE 3 learners complies with the requirements of the Law of Orientation issued by the MNE in February 2008. It is a continuation of the procedures used in the first and second-year syllabi founded on the CBA principles and learner-centredness. To reach the targeted competencies

mentioned previously, new textbooks were designed. "*New Prospects*", which is actually used by secondary school teachers, is one of them. This textbook is designed to reflect the approach and methods that the designers put forward. To support this idea and according to Hutchinson (1987, p.37) the selection of materials is the most crucial decision that a language teacher has to make since the process requires that the evaluator should look "below the superficial feature of materials", and because these materials are not just tools; they are used to express the aims and methods of a particular teaching/learning situation. Besides, teachers, in this case, should use them selectively because "the danger with ready-made textbooks is that they can seem to absolve teachers of responsibility" Hutchinson & Torres (1994, p. 315).

New Prospects is the last textbook designed for SE 3 learners. It comprises six different units, dealing each with a particular theme to be translated into a project. The following table presents the units and themes proposed:

Units	Themes
1. Exploring the Past	Ancient Civilizations
2. Ill-Gotten Gains Never Prosper	Ethics in Business: Fighting, Fraud and Corruption
3. Schools: Different and Alike	Education in the World: Comparing Educational Systems
4. Safety First	Advertising, Consumers and Safety
5. It's Giant Leap For Mankind	Astronomy and the Solar System
6. Keep Cool!	Feelings, Emotions, Humour and Related Topics

Table 3.5: *New Prospects* Textbook Units

Each unit from the textbook comprises two main parts with two sequences each:

- Part 1: *Language Outcomes:*

This part is divided into *Listen and Consider* and *Read and Consider* sequences. Both of them focus on the study of grammatical structures, vocabulary, pronunciation and spelling through the *Around-the-Text* rubric. Both of these two sequences end with the *Think, Pair, Share* rubric that centres the attention on individual, pair and group work and promotes interaction and negotiation of meaning between group members. Besides, the mixed set of activities integrated into this rubric intends to get learners to speak and write.

The *Think, Pair, Share* rubric related to the *Read and Consider* sequence is followed by the *Take a Break* rubric, which is itself followed by the *Research and Report* rubric where learners are asked to re-invest individually, in pairs or groups what they have learnt in the first part of the unit in terms of grammar and vocabulary. Besides, it promotes interaction and negotiation of meaning among learners and provides a training ground for the preparation of the final primary task: the project.

❖ Part 2: *Skills and Strategies Outcomes*

This part focuses on helping learners to develop their compositional and communication skills. It contains two sequences the objective of which is to make learners practise the four primary skills and social skills such as responding to problem-solving situations, working in pairs and groups and communicating inside or outside the classroom.

1. *Listening and Speaking:*

This sequence contains four main rubrics:

- *Before Listening :*

  It provides pre-listening activities which allow the learner to guess content throughout a set of questions.

- *As You Listen :*

  It consists of activities which require from learners to listen to a script or to the teacher reading a passage and check their answers in the *Before Listening* task.

- *After Listening :*

  It encompasses various set of activities which permit the learners to practise the other language skills, namely speaking, reading and writing.

- *Saying It in Writing:*

  It makes learners ready for the fourth sequence since it asks them to produce a piece of writing associated with the listening content.

2. *Reading and Writing:*

In this sequence, learners are supposed to develop their reading and writing skills through texts analysis. Four rubrics fall under this sequence:

- *Before Reading :*

  The rubric comprises questions asking the learners to make predictions about the topic by appealing to their prior knowledge.

- *As You Read:*

  In this rubric, the focus is put on learners' use of their skimming and scanning skills.

- *After Reading:*

  It typically requests learners to identify the structure of the text in question and incorporates writing activities which prepare them for the next rubric.

- *Writing Development:*

  It allows learners to express their opinions, present arguments, give reasons and suppositions when doing the related writing tasks.

- *Project Outcome:*

  Here learners are provided with guidelines about how to concretise the assigned project and includes useful web sites.

- *Assessment:*

  Two sub-rubrics are included in this rubric:

– *Language Assessment*:

  It contains a checklist in which the main language points are listed. Learners are asked to tick the unit language items they have learnt and mastered. This checklist can be used by the teacher to remedy to learners' language weaknesses.

– *Skills and Strategies Assessment*:

  The teacher, in this phase, provides learners with a non-graded test in which a set of activities are designed with specific criteria. This test aims at making learners assess their level of performance and help the teacher to identify the learning weaknesses, and thus prepare appropriate activities for remediation. Moreover, thanks to those weaknesses, the teacher can adjust the teaching content, instruction and approach according to learners' profiles.

3.8. Population Description

The participants are the essential and fundamental focus of any research in any educational context; that is why many EFL teachers and secondary school learners participated in this research. However, since middle school is the starting point for EFL learning in Algeria, it is quite hard to talk about critical thinking at this level because of learners' immaturity and "the negative attitudes teachers hold are towards the textbooks used and more particularly to the layout [of those textbooks] which does not appear to be attractive to the intended learners"

(Bader, 2017, p.259). For this reason, the third-year secondary school level has been chosen because learners are matured enough to be taken as decision-makers.

The sample of population chosen for this study consists of EFL teachers at secondary school. For the sake of reliability, it actually consists of 100 teachers and 190 learners who were given questionnaires to fill in. The teachers and learners were from some secondary schools in Mostaganem, Oran, and Tlemcen. Picking participants from different schools and regions is drained from the aim of enlarging the research participants to get reasonably credible results.

3.8.1. Teachers' Profile

The informants were teachers of English at secondary schools in three different towns: Mostaganem, Oran and Tlemcen. Secondary school teachers are known as "PES" in the Algerian educational context. Their teaching experience varied from one to another; besides, they were in charge of different levels 1AS, 2AS and/or 3AS. The questionnaire was addressed to randomly selected teachers throughout different schools existing in the regions mentioned above, regardless of their age, gender and length of experience in teaching. Their number was estimated around 100 teachers, and most of them were female teachers. Yet, only 71 filled and handed back the questionnaire. The majority of them were full time teachers, however; the rest were either trainees or substitutes. In fact, all of them held either a Master' or a Bachelor's degree in English language and their teaching experience varied from 01 to 30 years. Most of them were novice teachers. Only 3 teachers had 26 to 30 years of experience as EFL teachers in the secondary school. The number of teachers is detailed in the following table:

Region	Number of Teachers
Mostaganem	**50**
Oran	**30**
Tlemcen	**20**
Total	**100**

Table 3.6: Number of Teachers from Each Region

3.8.2. Learners' Profile

The present study involved 190 third-year secondary school learners enrolled during the academic year 2018-2019, and they belonged to different streams, namely Literary, Scientific and Foreign Languages. Besides, they were from different secondary schools: Mostaganem, Oran and Tlemcen. During the classroom observation of teachers, the questionnaires were handed to the learners. Additionally, the experiment used in this study involved only twenty (20) learners from Abdelhak Benhamouda Secondary School, the researcher's workplace. They

were chosen as a sample for this case study. The table below illustrates the number of population from each stream:

The Streams	Nb. of learners
Literary	**61**
Scientific	**80**
Foreign Languages	**49**
	Total = **190**

Table 3.7: Number of Learners from Each Stream

It is worth noting that those learners had already learnt English for six years: four years in the middle school and two years in the secondary school. At secondary school, the Scientific and Literary streams study English three hours a week; whereas, the Foreign Languages streams have four hours per week. Their age ranged from sixteen to seventeen and they shared the same learning backgrounds. Their mother tongue (MT) is *Algerian Arabic*. Their first language is Modern Standard Arabic which is the official language taught in schools and universities. French is considered as the first Foreign Language (FL1) while English is the Second Foreign Language (FL2).

3.9. Research Design and Methods

Any research process is based on a specific research design in which a range of methods and procedures are used to identify, locate, assess, and analyse the information a researcher needs to support her/his research question. Thyer (1993) defines the research design as:

> [...] a blueprint or detailed plan for how a research study is to be completed-operationalising variables so they can be measured, selecting a sample of interest to study, collecting data to be used as a basis for testing hypotheses, and analysing the results (p. 94).

Besides, Mouton (1996) claims that a research design is "a set of guidelines and instructions to be followed in addressing the research problem" p.107. The research adopt a mixed methods design. Qualitative research is used to explore and understand thoughts, concepts, or experiences and it comprises interviews, observations, and literature reviews. However, the quantitative research deals with numbers and statistics with the use of charts and graphs. Its aim is to test or confirm the theories and assumptions raised in the study.

In this study, a pre-and post-test research tool was used to establish the importance of project work in enhancing learners' critical thinking. A mixed methods approach is also employed to lay out the aspect of critical thinking and carry out valid and reliable findings. Lent et al. (1994) think that this approach is a combination of a data source that is likely to be

necessary for most evaluations because often no one source can describe adequately such a diversity to features found in educational settings, and because of the need for corroboration of findings by using data from different sources, collected by different methods and by different people (i.e. triangulation).

In order to explore the importance of the implementation of the project work methodology in ELT in the Algerian secondary education to improve learners' critical thinking and to reach the aims set previously, the research study relied, on the one hand, on a qualitative data collection method that was conducted through questionnaires directed to both teachers and learners, classroom observation sessions and a pre-test post-test research experiment and on the other hand on a qualitative data analysis that was conducted regarding the textbook and the syllabus.

3.9.1. Data Collection Procedure

To collect the necessary data to address the four research questions of the present study, the researcher used some research tools: the checklist for analysing the syllabus and textbook content, the teachers' questionnaire to address the second research question and investigate teachers' attitudes towards critical thinking and project work, learners' questionnaire to explore learners' attitudes towards learning English, classroom practices and doing projects, classroom observation to inquire about classrooms practices and learners' behaviour and interactions and the last tool is the pre-post tests for measuring the impact of project pedagogy on learners' critical thinking enhancement. The diagram in the following page summarizes and illustrates the data collection procedure employed in the present study:

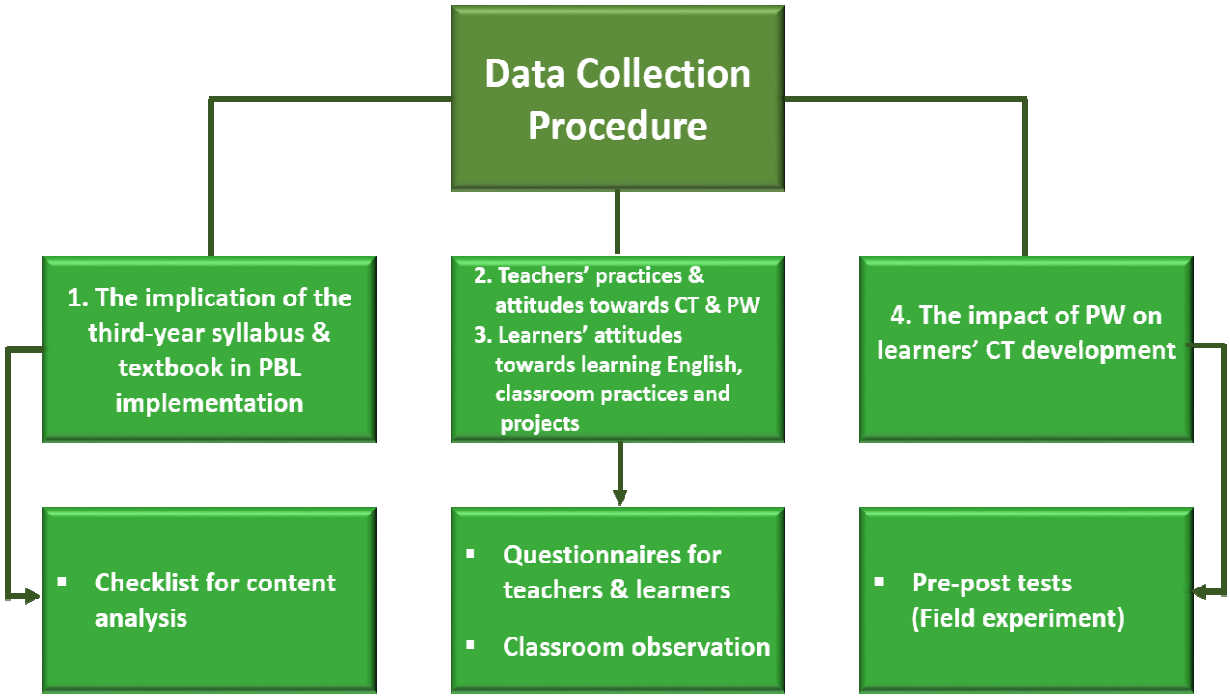


Figure 3.2: Data Collection Procedure

3.9.2. Case Study

Conducting a case study on a subject in a field like linguistics, literature, or education requires a particular research procedure because one theme is different from another regarding its nature and logic. Therefore, the data collection and data analysis instruments for each case will be unique (Yin, 1984). Yin also regards a case study as "an empirical inquiry that allows for investigation of a contemporary phenomenon within its real-life context when the boundaries between the phenomenon and the context are not clearly evident and in which multiple sources of evidence are used" (p.23).

Case studies are then various, and for each situation, the researcher utilizes explicit instruments to gather evidence or the fragments which support the hypotheses of the study. Case studies are viewed as explicit, profound, intensive, and abstract as they cannot be broad (Singh, 2006, p. 147). They are used for particular and specific cases and situations because of which precise observations are needed; they are profound because their pith is the investigation of the considerable number of peculiarities of a phenomenon; they are intensive since they are expected to provide detailed data about the phenomenon; and they are subjective because in teaching, for example, there are different populations. Fact-findings about psychological or educational issues are among the major aims of a case study (Singh, 2006, p.148).

In case studies, the primary source of information is set out by a respondent, for example, a learner or a teacher. This precise information may help the researcher achieve an understanding of the research. That leads the researcher to get answers to questions being asked and to get different opinions on issues being dealt with. Furthermore, these problems are investigated within small groups of individuals and small places such as schools and institutions. Blaxter et al. (2006) state that:

> The case study is, in many ways, ideally suited to the needs and resources of the small-scale researcher. It allows, indeed endorses, a focus on just one example, or perhaps two or three. This might be the researcher's place of work, or another institution or organisation with which they have a connection: a company, a voluntary organisation, a school, a ship or a prison. Or it might be just one element of such an organisation: a class, a work team, a community group or a football team. Or the focus might be on one individual, or a small number of individuals, as in life history studies or analyses of how top managers have reached their positions (p.72).

Case study research has had a foremost place in different fields ranging from psychology, politics, business, social work to education. The main focus of the present research is put upon secondary school education. Case studies are, therefore, related to circumstances in which the context is part of the issue being tackled in the research. In this research, a case study design is best suited to find out the extent of using project works in developing learners' critical thinking and higher-order thinking skills.

3.9.3. Action Research

As opposed to traditional research where the researcher is removed from the study, in action research the researcher is a practitioner taking part in the research environment (Mertler, 2014; Herr & Anderson, 2014). Researchers and educators use action research as a tool to help them improve teaching practices (Sagor, 2011). Teachers conduct it with their learners in a natural setting like in the classroom or school.

Action research is an approach to research attached to the paradigm of pragmatism which is part of the principle. Evidently, it is through action that one can generate scientific knowledge useful for understanding and changing the social reality of individuals and social systems. This intention to change is a reason for undertaking research that goes beyond the simple description, understanding and explanation of the phenomena that are usually associated with research (Robson, 2011). It directly questions the dissociation that we usually notice between theory and practice since, in action research, theory supports action or even emerges

from the action. The theory thus makes it possible to understand and act on the real problems that we encounter on the ground in a concrete way.

Burns (1999) presented the work of Linda Ross, an Australian teacher who carried out a research with her learners and who commented about collaborative action research and said:

> I would strongly recommend action research to all teachers. The process is rewarding because it validates classroom observation and encourages you to value your own judgments. The sessions with all teachers help to shape your ideas and challenge you to rethink many issues. In my case, it reminded me of the value of asking the opinions of the students. Finally, while traditional forms of professional development can be very stimulating, it is sometimes difficult to relate the theory with which teachers are presented to the reality of the classroom. Action research is refreshing as it is concerned with the classroom as it really is (p.11).

Burns (1999) also confirms that a teacher being part of a collaborative action research develops "a critical perspective". She recommended that "action research should be considered by language teachers, as a realistic extension of professional practice" (Burns, 1999. p.12).

In this study, the researcher adopted Kurt Lewin's action research cycle, which is based on planning, acting, observing and reflecting. The following diagram summarizes those steps:

Figure 3.3: Kurt Lewin's Action Research Cycle

Bargal et al. (1992) introduced the following characteristics of action research as imagined and proposed by Lewin in his latest writings. They noted that the action research paradigm is based on (1) a plan-act-evaluate cyclical process; (2) an ongoing feedback of the research results to all the groups involved; (3) cooperation from the beginning to the end of the process between stakeholders: researchers, practitioners and clients; 4) the implementation of the principles that govern social life and decisions made by the group; 5) the importance given to the differences in value systems and power structures of the research participants; and (6) the concomitant use of action research to solve problems and generate new knowledge.

3.9.4. Mixed Methods Research

The mixed methods research is a methodology in which quantitative and qualitative methods are combined so as to collect and analyse data. In this study, the researcher additionally opted for this method so as to have a clear understanding of the impact and the effectiveness of PBL in enhancing critical thinking in EFL classes.

3.9.4.1. Quantitative Data Collection

Quantitative data collection is concerned with the use of experimental methods and quantitative measures to test general hypotheses (Hoepfl, 2000). In the same vein, Bogdan & Biklen (1998) gave their point of view on quantitative research and disclose that:

> Charts and graphs illustrate the results of the research, and commentators employ words such as 'variables', 'populations' and 'result' as part of their daily vocabulary[...]even if we do not always know just what all of the terms mean [...but] we know that this is part of the process of doing research. Research, then as it comes to be known publicly, is a synonym for *quantitative* research (p.4).

Quantitative research is mainly based on numerical and mathematical calculations. Bryman & Bell (2015) describe it as a process of "entailing the collection of numerical data and exhibiting the view of relationship between theory and research as deductive, a predilection for natural science approach, and as having an objectivist conception of social reality" (p.160). Methodically speaking, this method examines numerical variables by applying statistical techniques.

Moreover, quantitative research is defined as "an enquiry into a social or human problem, based on testing a theory composed of variables, measured with numbers, and analysed with statistical procedures" (Creswell, 1994, p.2).

3.9.4.2. Qualitative Data Collection

Qualitative research, however, is a range of insightful procedures which are broadly used. It gives knowledge into individuals' behaviour and recognitions and permits them to consider their opinions on a specific subject in more profundity than in a study. It produces thoughts and speculations that help to analyse how an issue is seen by the target population and makes it conceivable which can also help to characterize or recognise the choices connected to the concerned issue. This strategy is extremely valuable for pre-testing ideas. Group conversations and top to bottom individual meetings are the most well-known subjective systems.

Qualitative research depends on semi-organized or even unstructured interviews in which the researcher or interviewer works with a conversation or interview guides created by the subject and guided by the objective of the investigation.

Contrasted with overview examination methods, qualitative research does not use a shut survey. The researcher has a specific scope to adjust the discussion or the interview guides, as indicated by the members' answers and individual experiences. The researcher would thus be able to take out areas of inquiries which do not produce a ton of valuable data and include those which are all encouraging.

Qualitative research is portrayed by a methodology that means to depict and break down the culture and the behaviour of people and their groups from the point of view of those who are examined. Consequently, it demands a total or a "holistic" knowledge on the social setting in which the study is carried out. Social activity is viewed as a progression of interrelated occasions to be wholly portrayed to mirror the truth of regular daily life. Qualitative research depends on an adaptable and give-and-take research methodology.

Qualitative strategies do not create factual information, and the outcomes cannot be extrapolated to the entire population since the research sample is not illustrative or was not drawn at random. Therefore, qualitative data are generally inconclusive statistically and they should only be used as percentages or figures in an approach to quantify qualitative information. However, the usefulness of qualitative research should not be miscarried. A qualified moderator or interviewer can solicit valuable information and ideas by asking additional questions about how participants relate to an issue or a process the information provided to them.

Interestingly, quantitative research depends on a methodical way that deals with the collection and analysis of data acquired from a sample of the population so as to give factually valid results that are commonly used as percentages.

The most commonly used data collection methods in qualitative research have specific advantages and limitations. These methods are:

- Unstructured interviews;
- Semi-structured and structured interviews;
- Group interviews;
- Observation methods;
- Modelling of the ethnographic decision tree and social network analysis.

3.10. Data Collection Instruments

Data collection is an important step in any research process. In this research phase, the researcher used a variety of data-collecting instruments. The latter are chosen according to the type of research undertaken. The following section illustrates and describes in details the research instruments employed to carry out the present study.

3.10.1. Questionnaires Description

A questionnaire is a research instrument that embodies a series of questions that help to collect data from informants. It is an effective means to measure the attitudes, perspectives, perceptions and the behaviour of a large number of population. As Wilson et al. (1994) claim, "the questionnaire is a widely used and useful instrument for collecting survey information, providing structured, often numerical data, being able to be administered without the presence of the researcher, and often being comparatively straightforward to analyse" (p.1). In this study, the questionnaires were given to teachers and learners hand-to-hand and sent via the Internet. To collect as much data as possible, both open and closed questions were used.

3.10.1.1. Teachers' Questionnaire

In order to save time and effort, the questionnaire is the best research tool to be used. It helps to collect data in a short period of time. In this study, a questionnaire was administered randomly to one hundred (100) teachers from different secondary schools in three distinct towns in Algeria: Mostaganem, Oran and Tlemcen. However, only seventy one (71) questionnaires were handed back. The questionnaire embedded three types of questions: MCQ, close and open-ended questions:

- MCQs: the informants are requested to select one or more options from a list of answers, and sometimes they are asked to justify their choice(s).
- Close-ended questions: they request the informants to opt for one of the proposed possibilities without commenting.
- Open-ended questions: they invite the informants to express their point of views freely.

The teachers' questionnaire contains forty-five (45) questions and it is divided into three parts:

- *Part one* aims at obtaining data from the informants (teachers) about their age, gender and teaching experience. It also aims at eliciting data about their opinions on the teaching and learning approaches they know.
- *Part two* is planned to get an idea about critical thinking, whether or not teachers consider learners as capable of taking decisions in problem-solving situations and whether they view

them as critical thinkers or not. It also deals with the hindrances that may handicap the fostering of this skill.

- *Part three* focuses on the project work and project-based instruction as a means to promote critical thinking and help learners develop their critical thinking skills. At this level, teachers are asked whether easy-to-follow guidelines and training development sessions could help them to adopt the project work methodology in the classroom.

3.10.1.2. Learners' Questionnaire

As it is mentioned previously, the sample consisted of one hundred and ninety (190) learners from three different streams (Literary, Scientific and Foreign Languages) and secondary schools in Mostaganem, Oran and Tlemcen. Before administering the questionnaire to all the learners, the researcher invited only ten learners for a pilot test so as to detect any drawbacks concerning the terminology used. Those learners were requested to answer the questions and try to spot any occurring obstacles in the questionnaire. From the participants' feedback, the researcher was able to revise the questionnaire by omitting and excluding some items and rephrasing ambiguous sentences. After the pilot test phase had been effectuated, the revised version of the questionnaire was distributed to one hundred and ninety (190) participants during the classroom observation sessions of the thirty teachers whom the researcher observed twice, one hour each session which gives a total of sixty hours as a whole. At the end of each session, the researcher distributed the questionnaires to learners. They were required to answer twenty (20) questions by checking the right box and writing sentences when necessary. The aim of the questionnaire is to elicit from the learners their opinions towards English as a language and investigate their motivation and interest in doing projects. The following section represents the aims behind the questions used in the learners' questionnaire. Each question (Q) aims at seeking learners':

Q.1. interest in learning English as a subject.
Q.2. opinions on the usefulness of English for their future purposes.
Q.3. motivation for studying English.
Q.4. interest in doing further studies in English.
Q.5. interests in doing projects in English.
Q.6. answers on whether they are assigned to do projects in the classroom.
Q.7. motivation in doing projects.
Q.8. opinion about conducting projects.
Q.9. answers on whether project work will help them improve their English.
Q.10. perception on obstacle that can hinder the realization of projects.
Q.11. answers on whether they have access to the Internet in their school.

Q.12. attitude towards the importance of the teacher's attitude in motivating them to do projects.
Q.13. preferences on research resources.
Q.14. preferences in working in groups, in pairs or individually in the classroom.
Q.15. preferences in working in groups, in pairs or individually while doing projects.
Q.16. opinion on the importance of projects in the development of learning.
Q.17. answers on whether they learn from their projects or the projects of their mates.
Q.18. autonomy in choosing the project topic.
Q.19. reaction towards non-motivating project topics.
Q.20. opinions on self and teacher's evaluation.

3.10.2. The Checklists and Analytical Framework

For the sake of analysing the Algerian secondary school 3rd year syllabus and the *New Prospects* textbook, the researcher has used a checklist as a qualitative data gathering tool. The checklist aims at examining whether the teaching materials mentioned above fit the project-based approach and whether the 21st-century skills, namely critical and creative thinking, collaboration and communication, are given prominence. Besides, the analytical framework of Stoller (1994) has been adopted to analyse a sample unit (*Ill-Gotten Gains Never Prosper*) from the *New Prospects* textbook.

***New Prospects* Textbook Checklist**		
Tick the item that corresponds to your assumption:	**Yes**	**No**
1. Third Year Syllabus:		
• Is the project work enhanced in the third-year syllabus?		
• Does the syllabus provide instructions on the roles of both the instructor and learners when dealing with the project work?		
• Does the syllabus favour critical thinking/problem-solving orientation?		
• Does the syllabus provide instructions on how to assess the project work?		
2. *New prospects* Textbook:		
• Is the project work given prominence in the textbook?		
• Does the textbook focus on various types of projects?		
• Does it provide instructions to help learners deal with the project?		
• Does it integrate critical thinking and problem-solving activities?		
• Does it focus on autonomy or collaboration?		
• Is the project work considered as a process or a final product in the textbook?		
• Do the instructed projects favour authenticity/ real-life themes?		

Table 3.8: The Checklist of the Syllabus and the *New Prospects* Textbook

3.10.3. Classroom Observation

Classroom observation is the third instrument used in this study to collect data concerning the effectiveness of the teachers' role in the enhancement of critical thinking among learners and to examine empirically the impact of teachers' classroom instruction on learners' learning. Marshall and Rossaman (1989) define Classroom observation as "the systematic description of events, behaviors, and artifacts in the social setting chosen for study" (p.79). Classroom observation is used to evaluate the quality of teaching and whether educators are applying what the curriculum suggests; Wragg (1999) states that "the purpose of looking at implementation is to see whether there is a mismatch between intention and strategies".

While structuring this investigation, the researcher opted for the first data-gathering tool, namely the teachers' questionnaire, but she has realized that this would not be adequate to measure the impact of classroom practice on critical thinking enhancement. Accordingly, Dörnyei (2007) foregrounds the importance of the classroom observation method as a remaining fundamental instrument that facilitates the gathering of information that cannot not be raised in questionnaires, namely the teachers' 'know-hows'. The researcher therefore chose to do a large-scale classroom observation study with the aim of observing teacher-learner interactions in its real setting so as to enlarge the data gathering and state credible results. Overall, the researcher designed a classroom observation checklist of a three-point scale to rate the teachers' behaviours that enhance critical thinking skills. The study adopted and adapted the observation form (see Appendix G) of Alwehaibi (2012), and it was submitted for examination to check its validity and reliability by a panel of experts like general inspectors of English and university teachers.

3.10.3.1. Classroom Observation Design

The classroom observation sessions related to this research were conducted in the first and second semester of the academic year 2018-2019. Thirty (30) EFL teachers from randomly selected secondary schools in Mostaganem, Oran and Tlemcen were observed. All the teachers had a positive attitude and accepted the researcher's visits to their classes. Each teacher was observed twice, and each session lasted one hour, which gave a total of sixty (60) hours. The classes observed were a third-year level of different streams and using *'New Prospects*' textbook. While observing, the researcher filled the observation checklist, focusing mainly on the teachers' practice to find out whether the latter embedded Bloom's Taxonomy, namely analysis, synthesis and evaluation and also enhances the higher-order thinking skills of learners.

The data gathered was later interpreted using a percentage calculation and presented in a form of tables and graphs in this paper.

3.10.4. Field Work and Experimentation

An experimental research design tool was also adopted for this study because experiments can aid the researcher to understand the relation between the variables, the participants, the setting and the causes and effects of the problem being examined and help her draw reasonable and conventional conclusions. To concretise this tool, the researcher chose twenty (20) learners from her classes as research subjects for this experiment. The learners were from Abdelhak Benhamouda Secondary School, a suburban public school in Mostaganem where the researcher works as a teacher. Thanks to that relationship between the researcher and the participants, the validity and reliability of the experimental research findings could be ensured.

Two third-year scientific stream classes were chosen and were eager to participate in the research project. The learners had the same characteristics: age, level, language ability and social context (heterogeneity). Twenty (20) learners from a population of sixty (60) in both classes were chosen to participate in the experiment. Ten (10) learners belonged to group one i.e. the 'control group'; whereas, the second group, which was also composed of ten (10) learners belonged to the second group: the 'experimental group'. The participants of the two groups were heterogeneous. The following table provides more details about the characteristics of the participants:

Group	Age	Gender		
		Male	Female	Total
Control	16-17	02	08	10
Experimental	16-17	03	07	10

Table 3.9: The Learners' Sample Population

The variable used in this study relates to the types of teaching methods. Two levels of the variable are used. The first one holds the traditional method of teaching which is, in the present context, similar to the "teach to the test" method presently adopted. It is worth noting that the latter is applied blindly by teachers all around the country because they are urged to finish the 3 AS programme before the baccalaureate exam. However, the second variable is based upon the project-based instruction approach. Besides, the two targeted concepts have been examined and evaluated in this study, namely the project work as an independent variable and critical thinking as a dependent variable. The aim of this experiment is to investigate the

impact of applying the project pedagogy and all the phases of the project work in enhancing learners' critical thinking. Hence, a quantitative study was used to effectuate numerical analysis and verify the procedure in which the project work could foster critical thinking in EFL classes. The following figure illustrates the experiment research design and the next sub-section gives more details about it.

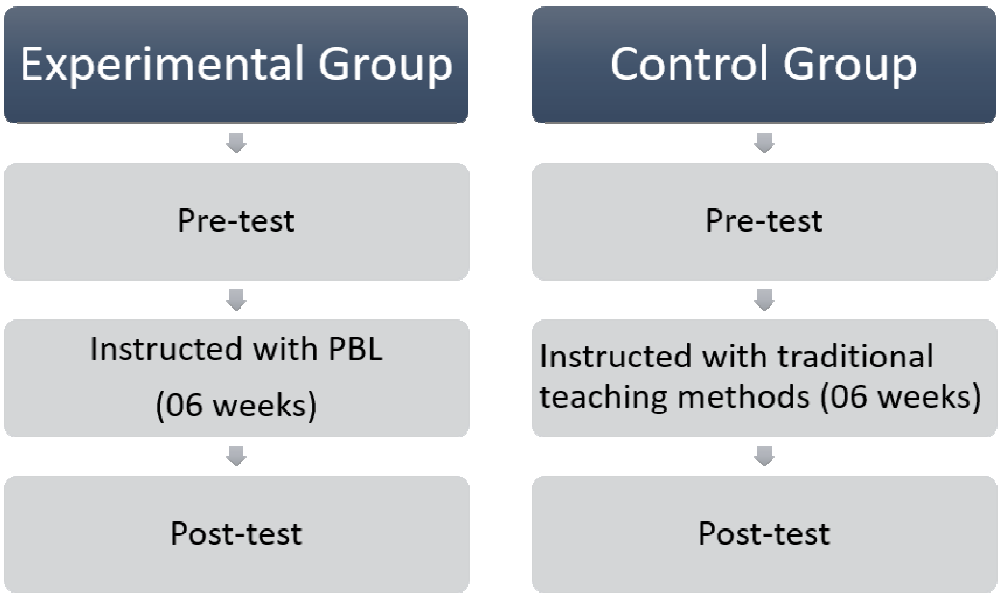


Figure 3.4: The Experiment Research Design

3.10.4.1. The Experiment Research Design

The experiment was done in the second trimester of the school year 2018-2019, and it lasted six weeks. At this level, English is taught three hours per week and the textbook used is "*New Prospects"*. The learners are required to deal with four units in the three semesters. The following table provides the units provided for the scientific learners in details:

Units in the Curriculum	Units Number in the Textbook	Pages
Unit one: Ill-Gotten Gains Never Prosper	Unit two	From 45 to 73
Unit two: Safety First	Unit four	From 106 to 134
Unit three: It's a Giant Leap for Mankind	Unit five	From 135 to 164
Unit four: Keep Cool!	Unit six	From 165 to 195

Table 3.10: The Units Allotted to the Scientific Stream Learners

Since the experiment was conducted in the second trimester, the researcher chose the third unit of the programme as a variable. Both of the classes chosen had English class in the same day, the experimental group from 9am to 10am and the control group from 10am to 11am. It is worth mentioning that the English proficiency of both the experimental and the

control group was regarded as equal at the beginning of the experiment. To start the latter, the learners were introduced to unit three, namely "*It's a Giant Leap for Mankind"* which starts in the textbook on page 135. As it is assumed to be, when introducing a new unit, the first page of each unit contains some pictures and the project outcome. However, the *project outcome* section was purposefully explained *only* to the experimental group by the researcher. Learners were supposed to check page 162 in the textbook to get more information about what they were going to realize in the project. In the same sessions, a pre-test was conducted with the learners of both the control and experiment group. The pre-test had been administered to the learners before they started the unit; whereas, the post-test was given to them at the end of the unit, i.e. after they had finished the unit.

The theoretical framework of project work, which is employed in this study, was developed by Stoller. This framework was employed only with the experimental group. As far as the control group was concerned, the researcher asked them to open their books on page 162 (see Appendix F), start reading the *project outcome* rubric content and then guess the theme of that unit. However, in another session with the experimental group, the researcher asked the learners to form two groups, read the *project outcome* rubric content and start discussing and planning for the project. The researcher mentioned that they should present their project work at the end of the unit. Subsequently, as mentioned earlier, learners in the experimental group were instructed using PBL designed by Stoller (1997), and those in the control group were instructed using traditional teaching: the approach currently used by teachers all around the country in which, as the teachers' questionnaire results revealed, project work is not applied in the third-year classes because teachers are urged and anxious to finish the programme before the baccalaureate exam. Stoller (1997) initiated PBL through ten steps, which are applied in the current experiment as follows:

1) According to Stoller (1997), both the teacher and the learners collaborate to agree on a theme which may be interesting to all of them. In this study, the experimental group was divided into two groups of five learners and were asked to discuss some interesting topics about astronomy and the solar system.
2) Stoller (1997) also proposed to determine the final outcome and the audience of the project. That is why the researcher asked the learners to decide about the way they were going to prepare and present their project: using posters, ID cards, gallery walk, a guidebook or a short presentation about the history of astronomy.

3) Based on Stoller's (1997) recommendation, the teacher should take into consideration learners' needs when gathering data to carry out the project, and the learners are expected to agree on the data that needs to be collected with the help of the teacher. In addition, they are required to agree on both the role each one will take and the timetable of the project. For this study, the researcher provided learners with some websites and resource books to be used as references for the topic of the project. In addition, both the teacher researcher and learners set a timetable for the project workshops in the coming weeks. Since three hours per week are assigned for English in the official time distribution, both participants and the researcher agreed on having two extra hours per week for the project workshops. Also, they decided to hold the meetings at the school library to talk about the progress of their work.

4) The fourth step, according to Stoller (1997), focuses on the preparation of learners for the language demands they need when collecting data. In this phase, the teacher researcher provided learners with activities containing specific and topic-related language items to prepare them for the data collection process in step 5. In the latter, the teacher researcher provided learners with some activities during the teaching sessions to help them collect some keywords to start collecting the needed data.

5) Stoller (1997) claimed that after the tasks that help to practice the language needed for collecting data, learners can use the school library or the Internet to collect data. In this step, the teacher researcher oriented learners in pairs and groups to the library to find some project topic-related books to collect data. She also encouraged them to use the Internet once outside the school so as to plan and build their projects.

6) After collecting data, as suggested by Stoller (1997) in step 6, learners were prepared for the language demand, a step in which they compiled and analysed the gathered information.

7) In step 7, learners worked in groups to evaluate the gathered data. They organized and discussed the value of the information they had collected, keeping only the data needed to complete their project.

8) Stoller (1997) allows the teacher in step 8 to prepare the learners for the language needed for the final activity. On the field, the teacher researcher provided learners with language improvement tasks to enable them to present the final product of the project efficiently. Those tasks focus on skills such as argumentative and persuasive debates, effective oral

presentations, revising and editing their written work successfully, and therefore, creating the final product. In other words, the form of the project is the primary concern for learners in this stage because it prepares them for step 9.

9) As planned in step 2, step 9 is devoted to the final product. In fact, learners presented the final product about astronomy and the solar system using the gallery walk strategy.

10) Finally, according to Stoller (1997) and as a last step, learners should evaluate the project in terms of mastery of language and the knowledge acquired during the project. In this step of the experiment, the teacher researcher asked learners to give some suggestions that might help in the preparation of future projects. She also provided them with feedback on their oral presentation and the content of the project.

After fifteen sessions, the learners in both groups were given once again the same test they had taken before starting the experiment. However, in this phase, the previously named 'pre-test' is considered as a 'post-test'.

3.11. Limitation and Delimitation of Data

Due to certain drawbacks, the research tools used in this study provided some limitations. The researcher used content analysis, written questionnaires, classroom observation, and field experiment. Each of these research tools brings an issue like stating what learning process is being described in addition to the data and findings that can hardly be generalized. Therefore, in order to have reliable data, a mixed methods approach is adopted. In this study, data is collected from different angles. Thus, different instruments are used. That helps to have an overview of the key issue raised in this study: the importance of critical thinking in education and the different ways to enhance it. This research is based on EFL teachers and learners. As far as teachers are concerned, a sample of seventy one (71) teachers from three cities in Algeria, namely Mostaganem, Oran and Tlemcen participated in this research. As for the experiment used in this study, two EFL classes from a suburban secondary school in Mostaganem are used as a sample. However, this sample size (20 learners) may not give results that represent the whole Algerian learner population. Yet, these results could provide some useful information about the hindrances and stimulants to critical thinking in the Algerian EFL context and strip suppositions away.

3.12. Conclusion

This chapter describes the research design and data collection tools used to collect data, analyse it and set conclusions to ensure the reliability and validity of the study. Moving through the chapter, a full presentation of the main research tools, the number of the concerned population and the setting in which the research was conducted is described. The type of research used in the present work is based on a mixed methods research design. Moreover, this chapter includes the research procedure followed in carrying out this study. The research findings are analysed in details in the next chapter.

Chapter Four

Field Work and Data Analysis

Chapter Four : Field Work and Data Analysis

Chapter Four : Field Work and Data Analysis

4.1. Introduction

This chapter demonstrates and interprets the findings sorted out from quantitative and qualitative data. First of all, it probes into the analysis of the third-year syllabus and textbook by paying attention to project pedagogy and critical thinking. Moreover, it serves to interpret the findings of the evaluation of project tasks in the third-year textbook, comparing them with the theoretical framework suggested by Stoller (…). It also highlights the results obtained from analysing the data gathered from the attitudinal questionnaires of both teachers and learners. Besides, it attempts to present the checklists' results of the classroom observation of teaching behaviours and practices proceeded by an interpretation and discussion. After that, it explores the findings and interpretations of the data gathered from pre and post-tests of control and experimental groups. Conclusively, this chapter ends with a discussion of the main findings. The underlying objective of this study addresses the process that promotes the implementation CT through the project pedagogy in the Algerian secondary schools involving the teacher, the learner and the teaching materials.

4.2. Analysis and Results of the SE3 Syllabus and *New Prospects* Textbook

Unlike the previous programmes, within the CBA, the focus is put on the integration of the "knows", "know-how" and attitudes to carry out tasks. As it is highlighted by Louis Roland (1999):

> In a competency based approach, attention is not focused on contents that are external to the individual, but on an integration of knowledge (theoretical and practical) by the individual, the know-how and attitudes that are needed to accomplish complex tasks which have meaning for learners and are necessary for their satisfactory adaptation to adult life (p.22). *(Translated)*

After the description of the pedagogical tools presented in chapter three, it can be stated that the syllabus and the textbook reach the 21st century. It is noticeable that syllabus designers have focused on reaching the objectives of the CBA in terms of language and communication, methodological/technological, socio-cultural and socio-professional objectives. Subsequently, in order to determine the relevance and the extent of accomplishment of these goals, an analysis procedure is necessary. Separate integrant parts of the syllabus and the accompanying document were examined in the previous chapter. It can be concluded that *chapters 8* and *9* in the syllabus give a general overview of project pedagogy which is an integral part of this study.

4.2.1. Results of the SE3 Syllabus Checklist

This section deals with the findings of the questions asked in the checklist of the syllabus and the *New Prospects* textbook (see Appendix K).

As for questions one and three, syllabus designers have focused on project work in the teaching/learning process. Therefore, this implies that the syllabus focuses on enhancing critical thinking, problem-solving, cooperative learning and communicative purposes, placing learners in conditions in which language permits the accomplishments of such purposes. When the learner endeavours to practice the target language, s/he will indeed face many problem-solving situations which are unavoidable in the learning process.

Learners need to acquire those skills, so the implementation of project work becomes a necessity. In this sense, syllabus designers seem much concerned with the integration of the project work in foreign language classrooms. Therefore, project pedagogy occupies an essential position in the syllabus. Chapter 8 of the SE3 syllabus proposes the following list of themes to be dealt with as projects:

- Ancient Civilizations
- Ethics in Business
- Education in the World
- Advertising, Consumers and Safety
- Astronomy and the Solar System
- Feelings and Emotions

The same section also includes a suggestion of the projects that will be dealt with for each stream, scientific or literary. The table below shows this classification:

	Scientific Streams	**Literary Streams**
Streams	**SC, M, TM, GE**	**LPH, LLE**
Allotted Projects	• Ethics in Business • Advertising, Consumers and Safety • Astronomy and the Solar System • Feelings and Emotions	• Ancient Civilizations • Ethics in Business • Education in the World • Feelings and Emotions

Table 4.1: The Syllabus Projects Distribution

The way the topics are selected and ordered is an indication of the view of the syllabus designers. Their selection is well-thought since it goes in line with Nunan's view when he states: "Syllabus design is seen as being concerned essentially with the selection and grading of

content" (Nunan 1988, p.5). The first part of the Algerian syllabus, chapter 9.1, describes the projects in terms of resources. It suggests that the projects proposed are to be taught through six rubrics or resources:

1. Project outcomes (Results to be obtained through projects)
2. Learners' outcomes (Learners' results)
3. Language outcomes (Grammatical structures, vocabulary, pronunciation, and spelling)
4. Skills and strategy outcomes (Results in terms of competences & strategies)
5. Intercultural outcomes (Results in terms of culture)
6. Technology skills (Technological competences). (MNE, 2006a, p.11)

The second part of the same chapter (9.2) provides teachers with the topics, goals and a detailed list of the outcomes of the proposed projects (MNE, 2006a, pp.13-21). By checking the answer to question two in the checklist, it becomes apparent that the syllabus does not provide any instructions on how instructors deal with the project work, either in or outside the classroom. Although project pedagogy allocates teachers and learners particular roles, the third year syllabus contains no particular instructions on how each of the two protagonists will perform. Therefore, there is doubt that teachers, especially non-experienced ones, can efficiently perform their role without providing them with any clear instructions on how to deal with the project work. Nevertheless, the accompanying document of the syllabus gives a full description of the project pedagogy, concentrating on the different phases of the project work. Most of the projects go through the same fundamental steps in which there is a choice of a topic, planning, doing research, collecting data, and sharing findings with an audience (Wrigley, 1998). The accompanying document (MNE, 2011, p.9), in this case, classifies these into three main phases:

1) *The Preparation Phase:* in this phase, the teacher should explain the project objectives. This phase also deals with the theme, the objectives, the distribution of tasks, duration, the materials and resources, the grading criteria, and finally the teacher's and learner's roles which are summarized in the following table:

Teacher's Role	Learners' Role	Roles Shared by the Teacher and the Learner
• Negotiates the theme of the project; • Determines the duration of the project; • Determines the evaluation criteria; • Brings learners together; • Limits his/her actions; • Gives feedback.	• Form groups; • Create the materials; • Collect data; • Select data; • Organize materials; • Introduce the product.	• Formulate the objectives of the project; • Collect ideas; • Plan actions; • Practice the language skills and others related to the project; • Collect feedback; • Analyse feedback.

Table 4.2: Teachers' and Learners' Roles

2) *The Realization Phase:* in this phase, learners start collecting information and data, planning actions, selecting the appropriate language, reading, discussing, exchanging ideas, correcting, deciding and organizing materials for the final product.

3) The Presentation Phase: it is the phase where learners present their product in front of an audience. To improve the product, photos, slides, and ICTs may be used, and an adequate room is to be prepared. The performers are expected to answer the audience questions, if necessary, during or at the end of the presentation.

After the presentation, some other steps are to be considered. The first post-presentation phase includes the learners' feedback where they have to take into consideration the audience's reactions and use them to make some additional changes in the project to ameliorate it. The second phase deals with the teacher's feedback. Here the teacher is supposed not only to give positive feedback but also some comments for the sake of the project improvement. In the third phase, stipulates that the project should be kept safe in the school library, for example, for future consultation or reference for other students. It is evident then that the teacher in PBL is present either in an apparent or a discrete way in all the phases of the project work.

The analysis also shows that the official documents are designed on the principle of learner-centredness, an approach that puts the learner at the core of the learning process. Since the approach is inherently student-centred, it is necessary to respect the student's needs and interests (MNE, 2011). Educationists agree on the idea that learner-centredness is a significant feature in a PBL class. Generally, learners who are taught to be increasingly aware of their

learning will be more effective performers and, as a result, will become active in monitoring their progress (Lee & Solomon 1992, pp.57-71); Paris & (Winograd 1990, pp.7-15).

The fact that the third–year Algerian Secondary School Syllabus is based on the principle of learner-centredness, it can be considered as a project-based syllabus. Outstandingly, this pedagogical material embodies some types of tasks like project work, Pair work exercises, higher-order thinking skills, problem-solving tasks, interviews and questionnaires. These are to be done by the learner during the course of instruction.

For the third question dealing with the problem-solving orientation, the syllabus not only offers learners an opportunity to get consistent control over their learning, but it also favours social and problem-solving situations. This view fits the social constructivist one which stipulates that language learning is an interactive process that can be enhanced by interaction with other participants: learners and the teacher or either of them. The interaction process is a vital element in PBL; the third year syllabus, for instance, contains such element when it requires the learners to be engaged in problem-solving tasks, to provide inferences, to set conclusions, to participate in group debates and share ideas in a social context. Communicative competence is also present in the syllabus. For example, grammar structures are taught both structurally and communicatively. The word 'wish' is used to express a wish and regret too. This example attests that language is prominent for learners to reach their objectives. In other words, communicative goals are the main focus of learning. By communication, syllabus designers mean both oral and written communication. They stress the point that teachers should make the difference between oral production and communication. They mention that even when the learner reads a text, s/he is supposedly communicating though both the reader and the author are not in a face-to-face interaction.

Furthermore, the syllabus offers various activities which aim at teaching the suggested forms. This variety of tasks and projects make of the project-based syllabus a task-based one. Many suggested tasks aim at plunging learners into real-life problem-solving situations. The assigned activities should be pedagogic, enhancing skills whereas others should be professional or “real life”, that is, tasks learners could easily encounter in their future professional life (Nunan, 1989, p.40). Although this learner-centred method is given great importance in the syllabus, the designers do not specify clearly which type of project the learners will carry out.

As far as question four about assessment is concerned, syllabus designers claim that it is an essential part of the teaching/learning process, used to measure learners’ progress all along the

learning process. "Assessment has always been a significant component of classroom practice." (Cumming & Wyatt-Smith, 2009, p.1). To help learners assess their learning, the SE3 syllabus designers have mentioned four types of assessment:

1) *Diagnostic Assessment:* done before starting an action research project, to help teachers prepare to teach a group of learners.
2) *Self- Assessment:* This should be integrated into the learning process, which involves the learners in various oral and written tasks. The learner should be aware of the learning progress and shortcomings. The teacher should provide learners with the evaluation criteria and procedure.
3) *Formative Assessment*: it is done during the teaching process to see if the instructional techniques are effective.
4) *Summative Assessment*: done after the teaching process, to see what students have learnt (MNE, 2006a).

Assessment is not only the job of the teacher but also the learner; both have mutual responsibility (Oscarson, 1989). Therefore, teachers should strengthen self-evaluation among learners so that they become more engaged, self-confident and very active. The inclusion of the four types of assessment in the SE3 syllabus confirms that the designers agree with several practical studies which show its role in increasing productivity and autonomy, higher motivation and less frustration.

Moreover, both the SE3 accompanying document and syllabus not only refer to the types of assessment mentioned above, but also include different varieties of assessment tools for teachers such as a checklist for assessing projects, a descriptive rating scale a sample of an assessment tool for reading comprehension, a sample of evaluation sheets and, samples of checklists for learners assessment of project work. These tools aim at helping both the teacher and the learner to evaluate their learning all along the evaluation stage. Solomon (2003) argues that assessment should be integrated during and at the end of PBL instruction which constitutes an important step in the learning cycle. The product of project work can be assessed in two ways: peer- assessment and self-assessment. Peer and self- assessment is the core focus of the CBA. Those types help learners to assess not only their learning progress but also their peers', which makes them aware of their weaknesses and signs of progress. This strategy gets learners to develop their metacognitive skills in their learning.

This analysis has revealed that the SE3 syllabus is a project-based one, and it follows the features of the 21st-century skills, i.e. Critical Thinking; Creativity; Collaboration and Communication. These are the essential elements in modern education since they make learners find solutions to problems, think outside the box, work and communicate with other

individuals. Such behaviours develop while embodying the pedagogy of PBL, which in its turn promotes learner-centredness, autonomy, and involvement. The characteristics mentioned above make PBL different from the traditional approaches to education which favoured teacher-centredness, thus transforming learners into passive consumers of knowledge. The analysis also shows that PBL is generally in line with the CBA since they both include tasks and projects as a part of the learning process, thus allowing life-long learning. The learner is an active agent who fully engaged in problem-solving situations and eventually put in the core of the learning process. Furthermore, this analysis shows that the SE3 syllabus emphasizes language, making it an essential tool for communicative matters. The more this language is mastered, the better the student success and development in an environment increasingly demanding academic/scientific and professional, and appeals to its ability to solve increasingly complex problems in various and varied situations.

However, syllabus designers stress the point that teaching English involves not only the acquisition of language and communication skills but also methodological/technological skills, cultural skills, social skills and more importantly help learners in the development of a critical and analytic mind which are based on respect for oneself and others, tolerance and openness to the world.

4.2.2. Results of the *New Prospects* Textbook Checklist

This section deals with the findings of the questions asked in the textbook checklist. The investigation shows that the SE3 textbook integrates project work. In fact, after checking the textbook units, it becomes evident that each file allocates a whole section to this learner-oriented activity. *Project Outcome*, as maintained by the textbook designers, is a section which assigns the learners with the projects they have to tackle. However, no detailed instructions to help learners conduct the project are afforded.

For the second part of question one, the focus of the analysis is also put on the *Project Outcome* section, taking into consideration the topic, materials, methodology and presentation. The analysis of the projects suggested in *New Prospects* shows that all of these projects fall under the structured project type proposed by Henry (1994, chapter 2).

The study of the sections assigning project work in the textbook units reveals that the designers have determined the topic, materials, methodology, and presentation. However, even though the authors have determined the topics of the projects, learners have the freedom to

choose a theme related to the general topic. The analysis also shows that no hints about methodology are given in the projects incorporated in *New Prospects.*

Additionally, the analysis shows that the projects provided in the textbook fall under research and survey type of projects proposed by Haines (1998).

Textbook Projects	Types of Projects
Making the Profile of an Ancient Civilization	Research
Writing a Charter of Ethics	Research
Designing an Educational Prospectus	Research
Making a Survey on the Impact of Advertising	Survey
Designing an Astronomy Booklet	Research
Writing a Booklet of tips for Coping with Strong Emotions	Research

Table 4.3: Project Types in *New Prospects* According to Haines (1989)

As it can be observed in the table above, most of the projects fall under the category of research projects, but only one of them shows the characteristics of the survey project. However, other types of projects are not used.

The textbook provides activities based on the cognitive approach, which is also highlighted in the SE3 Syllabus. Therefore, most of the tasks in the SE3 textbook enhance higher-order thinking skills (HOTS) in the reading and writing/listening and speaking sequences in which learners are asked to make inferences, to distinguish between facts and opinions and to demonstrate critical thinking and judgement like for example tasks on pages 190, 191 and 192 (see Appendix L). To do those tasks, learners need to use some critical thinking skills like analysing, evaluating, and creating.

It is noticeable in various activities in the textbook that many questions asked in tasks, especially in the reading and writing sequence, favour inference questions like the ones in the *As You Read* rubric (see Appendix M). However, the textbook employs the integration of both inductive and deductive reasoning. Therefore, most of the grammar activities, for instance, invite learners to inductive reasoning, moving from specific to broader generalisations. Learners are supposed to draw the rules of grammar tasks, then they analyse and create a hypothesis; an example is given in unit 3, *Grammar Explorer 1* (see Appendix N). Moreover, the *Project Outcome* section includes no suggestions about whether learners will carry out the

project individually or collaboratively. Nevertheless, by examining the project-based activities, it is noticeable that autonomy and collaboration are encouraged.

As it has already been noticed, SE3 textbook assigns project work on a unit-by-unit basis. So it can be said that project work is not integrated into the textbook as an activity through which learners acquire the target language. Instead, it is included as a kind of revision of the elements of language which were acquired during the unit. In other terms, this learner-centred activity is used as a prospect to exhibit what has been learnt in the unit. In the textbook, the project work is just signalled in the first page of the unit and presented in detail at the end of the unit. For this reason, project work does not comprise the process. Instead, it is regarded as a final product.

After a throughout the examination of the sections that comprise the project work in the textbook, it is demonstrated that projects focus on real-life subject matters such as advertising, ethics, corruption, fraud, natural disasters and schooling.

4.3. Analysis and Results of the Textbook Using Stoller's Model

This analysis focuses on the presentation of the results obtained from the activities suggested in the textbook to check whether the projects in SE3 textbook comply with the analytical model offered by Stoller (1997). The study is limited to the project of the second unit, "*Ill Gotten Gains Never Prosper*", to avoid repetition.

On page 45 of the *New Prospects* textbook, the project work topic is placed in the top left corner of the first page of the unit (see Appendix P). The project selected as a sample for this research is from unit two *Ill-Gotten Gains Never Prosper*. In this project, learners are asked to write a charter of ethics.

In the *Project Outcome* section (see Appendix O), learners are given help and advice on how to write a charter by giving them the following guidelines:

- Ethical standards are an important dimension in many professions like accountancy, law, architecture, medicine, banking, plastic surgery, business, teaching, journalism, sports, agriculture, and scientific research.
- Write a charter of ethics concerning three of the professions mentioned above. Your charter of ethics should include:
  A. A reminder of the social, economic, moral prejudices that the neglect of ethics might have on the professions and their clients. Give data/statistics.
  B. A short interview about the importance of ethics in the professions with representatives of professional associations.

C. A short article that reports unethical behaviour in the professions and how the law deals with it.
D. A code of ethics, i.e. a set of moral rules, for each of the selected professions (MNE, 2007, p.71).

In addition to the guidelines, the *Project Outcome* page provides learners with some alternative projects such as a "report about Internet Piracy/Cyber criminality [and a] report about counterfeits currently marked in your country" (MNE, 2007). In the end of the page, learners are given some Internet websites addresses to consult for further investigation.

After analysing the textbook sequences and rubrics of unit two, it can be concluded that almost all the steps suggested by Stoller (1997) are included except for step five and step seven concerning data collection which takes place outside the learning setting.

Many activities in the SE3 textbook illustrate the three first steps suggested by Stoller (1997), namely choosing a topic, attaining of the final outcome and preparing the project plan. These steps are determined by the learner with the assistance of the teacher. The following descriptions give an idea about the content and aims of the rubrics:

- Rubric: *Getting Started*

  The first page of unit two displays a picture showing a group of lawyers and the ISO logo (see Appendix P). The picture is to be used as a warm-up to introduce the theme of both the unit and the project. On the top left corner of the page, a pinned card, entitled *Project Outcome* where the topic of the project is displayed. In the next page, the first rubric of the unit, *Getting Started,* presents an activity, the aim of which is to introduce the topic of both the unit and the project. In this activity and with the teacher's guidance, learners will not only get familiar with the terminology of unethical practices but also reflect on the topic of ethics.

- Rubric: *Research & Report*

  The rubric *Research and Report* (MNE 2007, p.60) falls under the same steps, i.e. step one, two and three**.** Here the instructor is supposed to divide the class into groups and ask learners to investigate on the assigned task. At the end of the investigation, they should present their findings in front of their classmates. In this phase, learners accept the given tasks, decide on the data needed, the allotted time devoted to the task and the sources they will exploit. This task is considered as an organizational phase for the end-product.

Additionally, it is noticeable that the textbook designers have suggested alternative projects to provide learners with the possibility to choose the projects apart from the ones suggested in the *Project Outcome* rubric (see Appendix O). Writing a report about Internet Piracy or Cyber criminality in unit two "*Ill Gotten Gains Never Prosper*" is one of the alternative projects proposed in this unit. Giving learners the freedom to choose the topic of the project increases their motivation and raises their interests.

Step four leads to the data gathering step i.e. step five. *New Prospects* focuses on activities which promote the skimming and scanning techniques that enable learners to collect the information needed according to their purpose in a short time, and thus they become flexible readers.

- Rubrics: *Getting Started* ; *Let's Hear It*; *As You Read* (MNE, 2007, pp.46, 47, 66)

  The task in *Getting Started* puts learners in a problem-solving situation, pushing them to make hypotheses and predictions; whereas, the task in *Let's Hear It* makes them check some of their hypotheses. In the *As You Read* rubric, learners are given tasks aiming at teaching them the reading strategies of skimming and scanning since they are crucial when learners aim at collecting data for their projects.

As for step six, which is a preparative stage for step seven, the analysis of the *New Prospects* textbook tasks reveals that the majority of the tasks provide learners with the language and the skills needed to compile and analyse and evaluate the data gathered in step five. Hereinafter an example from the textbook:

- Rubric: *Vocabulary Explorer (*MNE, 2007, Task 1, p.57)

  In this task, learners are asked by the instructor to go back to the text and find words related to fraud. This activity aims at making learners collect specific information and categorize it, paving the way for the compilation and analysis stage: step seven.

As a matter of fact, step seven is the most crucial stage in which learners need targeted tasks, especially for data evaluation, which the textbook under analysis lacks. In this case, the teacher should guide learners in keeping the relevant data needed for the completion of the project. Accordingly, the teacher's role in this phase is vital in terms of preventing learners from a copy-paste of data from the Internet as it is "only one information resource. Students often need help using it effectively" (Markham, 2003, p.171). Relying on the answers of question seven in the teachers' questionnaire, which investigates their role in making learners aware of the drawbacks of copyright violation, the majority of teachers answered positively.

Besides, in this phase, learners will learn to summarize, interpret and analyse information. Nevertheless, the SE3 textbook is well-equipped with these tasks. For example, in the first task of the *As You Read* rubric (p.66), the textbook designers instruct learners to choose the sentence which best summarizes the content of the text and ask them to provide justification.

As a teacher, when you design and introduce successful projects and see your students engage more deeply in meaningful learning, you will discover your own good reasons to continue on this journey (Boss & Krauss, 2007, p.19). A project can be associated with Bloom's Taxonomy of Educational Objectives to make it very effective. For Bloom, learning at higher levels is dependent on having attained prerequisite knowledge and skills at lower levels. Focusing more on the HOTS rather than the LOTS is an effective teaching strategy leading to successful projects and thus preparing learners for life-long learning. In fact, the SE3 textbook contains many learning activities which promote those three higher-level skills, namely analysis, synthesis and evaluation. The following figure illustrates the pyramid of Bloom's Taxonomy (1956):

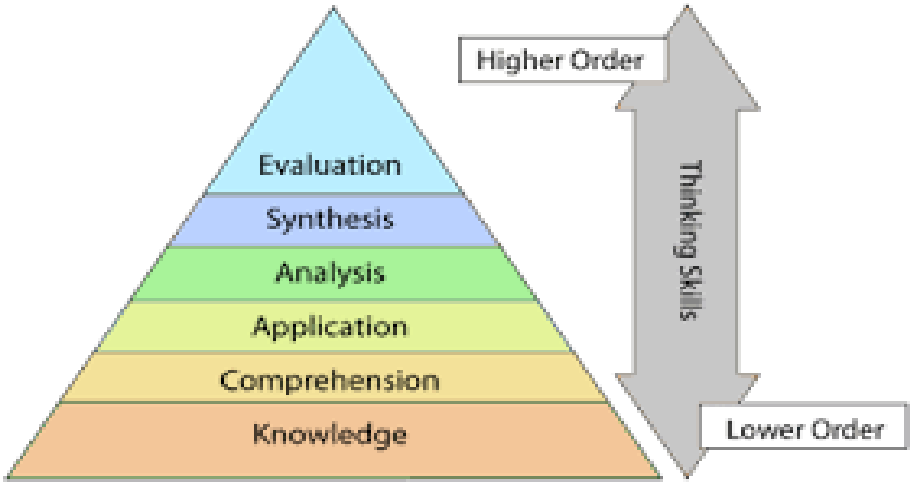


Figure 4.1: Categories in the Cognitive Domain of Bloom's Taxonomy (1956)

This hierarchical model of cognitive thinking is the ultimate way to the acquisition of a competency; therefore, teachers need to assign tasks that require learners to actually read and process the information in order to solve problems and complete challenging projects and tasks. The HOTS are the most effective cognitive processes mainly implemented in PBL. As Markham et al. (2003) state: "Students who have the opportunity to discuss, analyse, and reflect on their learning experiences are more likely to retain and use their knowledge and skills" (p.101).

As far as step eight is concerned, the analysis of the second unit of *New Prospects* reveals that the unit contains a variety of activities targeting language improvement to help learners in the oral presentation of their final product. So learners need to master the language to prepare for the final product. To support the idea of the importance of language in preparing projects, the question - *Do you think that you may face obstacles (problems) when doing projects? If yes, what are they?* - in the questionnaire handed to learners reveals that most of the respondents mentioned the problem of language deficiency. Here are some tasks from the unit under analysis to improve the language needed to carry out the project:

- Rubrics: *Grammar Explorer 2* & *Grammar Explorer 3* (Task 1, p.49 and Task 1, p.50) *Grammar Explorer 2* (p.48) and *Grammar Explorer 3* (p.49) (MNE 2007).

  Those rubrics provide activities to prepare learners for the language necessary for the project. The first aims at getting learners express their impatience with malpractices using the grammatical phrase 'It's high time'. The second asks them to express advice using 'had better'. Both of the expressions are necessary since they will later be asked to use them in designing a 'code of ethics'.

- Rubric: *Think, Pair, Share* (MNE, 2007, p.52)

In the *Think, Pair, Share* rubric, learners are asked to prepare a short public statement on fighting fraud & corruption. All of the so far studied grammar forms are required to be used when writing about the anti-corruption programme. The tasks (1, 2, 3 & 4) designed in this rubric aim at helping learners progress in the language, and they are applied to practice the writing/speaking skills so as to help them effectively succeed the end-product.

- Rubric: *Pronunciation and Spelling* (MNE, 2007, pp.51 & 57)

The tasks provided in *Pronunciation and Spelling* train students to well pronounce some keywords that will be used a lot during the preparation and the presentation phase of the project.

- Rubrics: *Saying It in Writing* and *Writing Development* (MNE, 2007,pp.64, 69)

The tasks offered in those rubrics focus on the writing skills needed to revise and edit the data collected. Although the textbook designers have put great emphasis on the written skills that are, according to their perception, very useful during the baccalaureate examination, many tasks are integrated so as to help learners engage in oral presentations of their work. In *New Prospects,* learners are given various possibilities to present their work in front of their classmates. These opportunities are as follows: task 4, p. 52; task 4, p.58; task 2, p.60

(MNE, 2007) in *the Research and Report* rubric and the tasks included in the *Say It in Writing* rubric on page 64 and task 4, p.70 (MNE, 2007). Thanks to those tasks, learners get engaged in oral and written presentations. Those tasks also prepare learners for the requirements of step 9 where learners are ready to present their final product. After presenting the final product, step 10 provides learners with "*the culminating evaluation"* (Markham et al., 2003, p.101) in which learners assess and reflect on what they have learnt. Reflection is considered as an essential element in the learning process (Boss & Krauss, 2007). Markham et al. (2003) suggest that the questions or the discussion tackled in this stage should focus on the content, process and outcomes of the project; therefore, learners are supposed to ask questions such as "what did we learn?; did we collaborate effectively; what skills did we learn?; what skills do we need to practice?; what was the quality of our work?; where can we improve?" (p.101).

In *New Prospects*, the last section of the unit, *Assessment* (MNE 2007, p.70) (see Appendix Q), corresponds to step 10 since it includes tasks which provide learners with self-assessment. Learners assess their progress in terms of language items learnt, skills and strategies. This evaluation can be done *"individually or collaboratively"* (Markham et al., 2003, p.101). Also, the accompanying document suggests a questionnaire and a checklist (MNE, 2011, pp.26-27) that will be handed to learners at the end of each project to evaluate their learning progress.

By analysing the second unit of the textbook, it is worth to say that Stoller's analytical model for project implementation in the language classroom is visible in the stages suggested in the textbook, and most of the textbook activities mirror the steps proposed by Stoller (1997). Therefore, the *New Prospects* textbook is project-based since it includes both project-based tasks and the methodology for the achievement of this learner-centred pedagogy.

Although the textbook is an essential tool in the learning/teaching process, it remains only one of the means that lead to success. Successful learning, in fact, relies most on both the teacher and learner. In a project-based learning context, the instructor's role shifts from the authoritative and omnipresent teacher to the facilitator and guide. The teacher is no more the provider of knowledge, the controller, or the authority, but instead s/he is a facilitator and a resource for learners to draw on (Harmer, 2001, p.57). Interviewed by Nunan (1991), an EFL teacher said:

> As a teacher, I see my role as being two-fold. One is, yes, I am teaching the language, but I feel my other very important role is to assist the learners to take a growing responsibility for the management of their own learning. Within our programme, learners are with us for only relatively—short time, and we have to prepare them so that their learning continues outside, 'erm', the length of their course (Nunan, 1991, p.185)

Indeed, project work is a learner-centred activity, but it entails mutual efforts from both teachers and learners. The teacher should provide the appropriate environment to facilitate learning; whereas, the learner is supposed to function autonomously as a knowledge processor, compelling performer, problem-solver and generally speaking a good and consistent performer in all assigned areas. Project work demands guidance from the teacher and total engagement from the learner. If these two requirements are available, success at all levels is obtained. In this line of thought, Alan & Stoller (2005) argue that in order to promote project work effectively, both teachers and learners should be aware of their appropriate roles. In other words, a teacher should be as a guide and facilitator and the learner as an autonomous individual responsible for his/her learning.

4.4. Analysis and Results of Class Observation

As mentioned in the third chapter, in this current investigation, the research has used a classroom observation checklist (see Appendix G) to gather the necessary data to answer the second research question that investigates the extent to which EFL secondary school teachers' attitudes and classroom practices contribute to the development of learners' critical thinking. The checklist was not employed to evaluate the teachers' teaching but to observe and record how often the teachers use the three higher-order thinking skills of Blooms' Taxonomy namely, analysis, synthesis and evaluation, in promoting critical thinking skills in classrooms. The observation checklist consists of two parts: the level of questions asked and the critical thinking learning environment in the classroom. The following table reveals the results of the level of questions the teachers use to provoke critical thinking:

Level of Questions	Always	Sometimes	Rarely	Total
Questions provoking *analysis*	57%	30%	13%	100%
Questions provoking *synthesis*	27%	33%	40%	100%
Questions provoking *evaluation*	33%	20%	47%	100%

Table 4.4: Levels of Questions Provoking Higher-Order Thinking Skills

According to the classroom observation findings, seeking evidence by clarifying and justifying answers are the most asked questions. Therefore, the above table reveals that teachers do not always use the three levels of questions to challenge the learners to think. Thus, most of the questions frequently asked in the classroom fall under the analysis level, with a percentage of 57%. However, 30% of them sometimes integrate this questioning method while 13% of teachers rarely ask these kinds of questions and they mainly focus on the lower- order thinking skills namely, knowledge, comprehension and application.

As far as the synthesis level is concerned, only 27% of teachers frequently ask their learners to contrast their existing knowledge, give more details about the subject matter to create new situations, and 33% sometimes require learners to make suppositions and draw conclusions and assumptions. The majority (40%) rarely ask questions that engage synthesizing.

Teachers rarely ask learners to express their opinions and support them with reasonable evidence, and they do not instruct them to justify, judge and assess their thoughts. Such kind of practice indicates that requiring learners to relate their thinking skills to everyday life is relatively neglected. 47% of teachers questioned rarely use the evaluation questioning level.

These results reveal that synthesizing questions are the least frequently used in the language classroom. Thus, learners are rarely asked to relate their thinking skills to the social real life context. Teachers rarely ask their learners to judge reasonableness, reliability, credibility or validity. Additionally, they rarely instruct learners to think critically and apply their prior experiences to create new ones. Focusing on the lower-order thinking skills, namely knowledge, comprehension and application, is not enough to improve the learners' cognitive abilities. Hence, inadequate questioning limits the development of learners' critical thinking skills. The classroom observation additionally implies that insubstantial and restricted instruction does not prepare individuals for any problem-solving challenges that these learners may face in everyday life and workplace. Teachers are actually urged to work hard on their teaching methods, and thus they should use effective questioning to help learners engage in the learning process and practice their thinking skills.

Concerning the importance of a suitable learning environment that helps to promote critical thinking skills, Table 4.5 below sums up the data related to the effectiveness of teachers' classroom instruction and management in stimulating learners' critical thinking.

Critical Thinking-Based Learning Environment ITEM	Always	Sometimes	Rarely
1. Teacher uses group and pair work activities.	20%	27%	53%
2. Teacher tolerates learners' mistakes.	33%	50%	17%
3. Teacher uses ICTs and visual aids to improve cognitive abilities.	17%	17%	67%
4. Teacher encourages learner-centredness.	17%	33%	50%
5. Teacher provides sufficient guidance.	50%	50%	00%
6. Teacher is omnipresent.	83%	17%	00%
7. Teacher initiates a climate in which thinking is fully focused.	17%	17%	67%
8. Teacher strengthens learners to answer open-ended questions.	17%	33%	50%
9. Teacher is a guide and a facilitator.	17%	50%	33%

Table 4.5: Teachers' Behaviours Challenging CT- Based Learning Environment

The table reveals that 53% of the teachers observed do no invite their learners to work collaboratively using group/pair work activities. That is due, as some of the teachers whom the researcher has discussed with at the end of the class observation session admitted, to the time constraint and the noise it engenders since the classes are mostly over crowded. They assumed that it is time-consuming, and they should finish the programme. However, 27% of the observed teachers sometimes engage their learners in cooperative tasks, but although the learners were seated in groups, most of them were working individually. This implies that learners were not accustomed to such strategy. Furthermore, the allotted time instructed was not sufficient for this kind of activities; therefore, they should reconsider timing and manage it efficiently while instructing group and pair work tasks. Besides, teachers should boost all learners' involvement in the classroom by promoting pair and group work strategies. Before it is done, a teacher makes sure the groups or pairs are formed in such a way to have different levels/competences in each group so that learners can help each other.

In other words, group work was quite absent in the classes observed which limits learners interaction, and thus the learning process is not thought-provoking and does not lead to boost the high-order thinking skills of the learners. During the sessions observed, teachers have never assigned the learners with project work. When the researcher discussed with them this

point, they mentioned that the learners are supposed to be in charge of the revision of the baccalaureate exam. Although the project work is integrated into the syllabus and it was admitted even by the teachers that they agreed on the fact that it is the best task to promote and develop learners' critical thinking skills, they preferred to skip this crucial task because it is time-consuming. In this respect, organizing activities and adopting a specific teaching methodology which concentrates on the learning environment, promote a higher frequency of CT. This approach goes in line with constructivist teaching. With this in mind, Herrington et al. (2007) provide some features of the constructivist learning in which the focus is on the collaborative construction of knowledge which encourages critical thinking skills. Therefore, teachers are invited to use specific learning strategies to encourage their learners to social interaction and collaboration. These learning strategies such as project-based learning, problem-based learning, cooperative learning and inquiry-based learning, conduct to active citizenship and personal development. Neuroscientists confirm that constructivism focuses on lifelong learning which prepares learners for self-sustainability and competitiveness for the workforce.

As far as item two is concerned, the table shows that the majority of teachers tolerate learners' mistakes, with a percentage that ranged between 33 % and 50%. However, 17% rarely encouraged learners' mistakes. Recent research confirms that tolerating mistakes leads to successful teaching, and thus learning is enhanced effectively. Learners become motivated to make efforts to solve problems. The process of correcting mistakes should be tackled carefully, selectively and in a smooth way. The danger of over-correcting learners (correcting every single mistake) can lead to the loss of motivation, and it can even destroy the flow of the class/activity.

During the observation sessions, on the one hand, the researcher has noticed that some teachers praise learners even when they make mistakes and help them recognise their mistakes. Praising learners, even when they make mistakes, is encouraging and motivating. It raises their self-confidence and pushes them to be very involved in what is being done in class. On the other hand, some teachers although they tolerate the mistakes, they always correct learners' mistakes and therefore, peer-correction/assessment was quite absent, and this does not go in line with the findings of the analysis of the syllabus provided previously in this study. During one of the sessions observed, one of the teachers intervened to correct the mispronunciation of the word "congratulations" while the learner was reading her dialogue, though the lesson focus was on communication (not pronunciation). It was not necessary for the teacher to intervene

because the meaning of the message behind the conversation was clear. To sum up, mistakes correction should be managed carefully in order not to discourage learners and reduce their involvement in what is being done in the classroom.

Some learners were not engaged at all. Teachers asked them to get involved and participate in class many times, but it was in vain. According to them, that was due to the fear they have towards false answers. Hesitation among learners is due to both lacks of self-confidence and the teacher's omnipresence in class. When a teacher is always there to spot and correct every mistake learners make, the latter will develop that kind of fear and become shy, hesitant, and disengaged. Besides, the lack of involvement is also caused by the misunderstanding of the assigned task and learners' cognitive abilities. So to engage everyone in class and encourage the flow of communication/participation, teachers should know what, when and how to correct learners' mistakes, taking into account learners' psychological profiles. So using a positive attitude towards making mistakes may help learners productively in the learning process and consequently develop their motivation towards higher- order thinking skills. Teachers, learners and even policy makers should bear in mind that successful teaching/ learning is not a matter of high grades, but a matter of how the learning process is reached successfully. Grades never defined learners' skills. EFL teachers should foster intrinsic motivation, i.e. make learners enjoy their learning without any external incentive. This way, learners will become more interested in learning the language, and thus they become more engaged in the learning process.

Concerning the use of ICTs in improving learners' cognitive abilities, the results reveal that most of the classes observed were not equipped with technological tools or mindtools such as the Internet, computers, and projectors; therefore, 67% of teachers rarely used ICTs. Only 17% of them always use data projectors to present the lessons or sometimes use them as audio-visual aids when it comes to presenting a video related to some lessons in reading comprehension or at the beginning of the unit to help teachers introduce the theme of the unit.

It is worthwhile to state that the integration of ICTs and visual aids have a positive influence on both the learning and the teaching processes in the EFL context. Researchers and teachers agree that technology-based instruction improves learners' cognitive ability which is a "mental capability that […] involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience" (Gottfredson, 1997, p. 13). Using cognitive tools such as computers require learners to think critically. In this vein, Jonassen (2000) argues that cognitive tools are "computer-based tools and learning

environments that have been adapted or developed to function as intellectual partners with the learner in order to engage and facilitate critical thinking and higher-order learning" (p 9). According to Jonassen et al. (2003), mindtools enable the learner "to think harder about the subject matter domain being studied while generating thoughts that would be impossible without the tool" (p.30).

The thinking and the learning processes are enhanced while using a computer not as a source of knowledge but as a creation of it, and thus the learning process becomes more relevant. Additionally, both learners and teachers should know how to use these cognitive tools effectively. On the whole, to expand and amplify learners' critical thinking, teachers should teach their learners to learn with technology and not from it.

With regard to learner- centredness and teacher's availability in the classroom**,** the table shows that learner-centredness is not really encouraged in the classes observed. Only 17% of the observed teachers tried to guide the learners throughout the learning process; however; the majority (80%) were typically teaching with the traditional method i.e. the teacher-centred approach where the teacher is always omnipresent and where lecturing, opening long discussions with learners and explaining everything to them are predominant. Such classroom practice maximizes the teacher's talk and minimizes the learners' and make most of them less active and engaged.

In other words, monopolising the talk, spoon-feeding and explaining all and everything to learners increases teachers' TTT (Teacher Talking Time) because those long explanations minimize learners' talking time. In addition, this teaching style can benefit only the auditory type of learners and will undoubtedly transform the lesson into a lecture and the classroom into a teacher-centred one where learners have no chance to take part in what is being done. In such an environment, learners become passive and dependent on the teacher through time. Thomas Carruthers says, "A good teacher is one who makes himself progressively unnecessary." It means the more a teacher is visible in class; the more learners become invisible; the less they improve their thinking skills and competences. In other words, the more the teacher's talk increases; the fewer learners have opportunities to participate or interact; consequently, they become passive listeners and totally dependent on the teacher's explanations and instructions. Such climate inhibits totally the development of thinking and most importantly critical thinking. That is what item 7 in the table above confirms: 67% of the teachers rarely initiates a climate in which thinking is fully focused. Once again, that is due to time constraints.

Therefore, to stimulate learners' critical thinking, teachers should install a climate that encourages learners to learn by themselves and most importantly create learning opportunities such as challenging problem-solving activities and let learners try and take risks. It is worth saying that learners learn better from their mistakes. So teachers should cope with this situation by adapting the teaching material according to learners' levels and profiles and explaining what is necessary before learners start working on tasks.

Additionally, half of the teachers (50%) did their best to just guide their learners and that enhances learners' dependence and fosters autonomy. As it is noticeable in Table 4.5, 50% of the teachers rarely encourage learners to answer divergent questions: open-ended which means that most of the questions used by teachers were poorly constructed, focusing on convergent questions rather than divergent ones that foster deep thinking; however, 33% of the teachers sometimes encourage learners to think broadly and help them to go beyond mere memorization to divergent thinking. As for the last item, half of the teachers (50%) managed their roles of guides and facilitators and thus encouraging learners be autonomous and responsible of their learning. All in all, the results show that most of the teachers frequently encouraged questions that stimulate knowledge recalling and lower-order questions. Therefore, the overuse of those questions limits the development of higher-order, critical thinking skills in learners. Effective questioning can significantly enhance deep learning.

4.5. Analysis and Results of the Teachers' Questionnaire

The data collected from the teachers' questionnaire are displayed in the following tables and pie charts, and they are followed by analyses.

Q. 1-2. Participants' Experience					
Experience :	1-5 years	6-20 years	21-30 years	+30 years	Total
Nb. Ts. :	**39**	**23**	**9**	**0**	**71**
Percentage :	55%	32%	13%	0	/

Table 4.6: Teachers' Teaching Experience

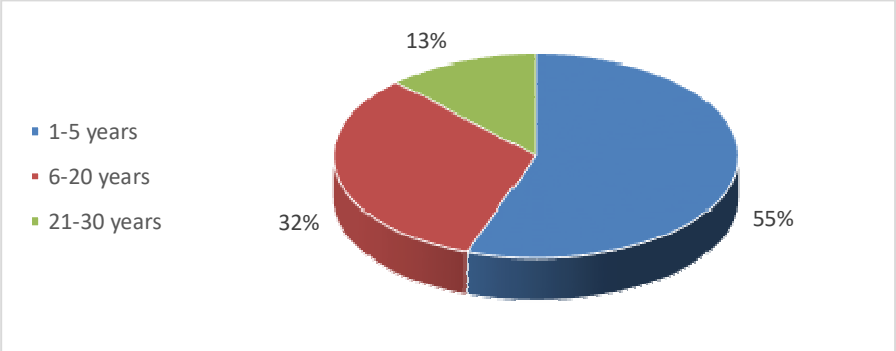


Figure 4.2: Teachers' Teaching Experience Summary

As far as the teaching period is concerned, the MNE has limited the maximum number of working years for teachers at thirty two (32) years for the three levels: primary, middle and secondary education. The figure above shows that the majority of the questioned teachers (55%) are novice. Whereas 32% are in a midway teaching experience, and 13 % are veterans.

Q. 3. What language teaching approaches are you familiar with?										
Approach:	CBA	CLT	TCT	LCT	PBA	TBA	Audio Lingual	GTM	Suggesto -pedia	Eclectic (Various approaches)
Nb. Ts. :	**66**	**45**	**07**	**07**	**04**	**00**	**00**	**21**	**02**	**09**
Percentage :	93%	63%	10%	10%	06%	00	00	30%	03%	13%

Table 4.7: Teachers' Familiarity with the Teaching Approaches

The aim of this question is, in fact, to investigate the teachers' familiarity with different approaches. The table above reveals that the great majority of them (93 %) are familiar with the CBA. That is because most of them are novice and possess updated knowledge on the recent approaches. The data also reveal that 63% are familiar with the Communicative Language Teaching (CLT) approach, whereas, 30% of them are knowledgeable about the Grammar Translation Method (GTM). Referring to the statistics above, it is noticeable that the teachers' familiarity with the CBA records one of the highest rates; an in-depth analysis of the questionnaire shows that such rate concerns only teachers who have less than seven years of experience. It appears clear that 93 % of the informants, who have less than seven years of experience, are more familiar with the founding principles of the CBA because of the up-to-date teaching they received at the university. However, only a small percentage of the informants are familiar with the other approaches mentioned in the table above. It is noticeable

that these informants have more than seven years of experience and have serious problems in implementing the CBA in their classes.

Q: 4. Which one (s) do you prefer to apply in your class?										
Approach:	CBA	CLT	TCT	LCT	PBA	TBA	Audio Lingual	GTM	Suggesto -pedia	Eclectic (Various approaches)
Nb. Ts. :	**60**	**11**	**00**	**00**	**00**	**00**	**00**	**00**	**00**	**00**
Percentage :	85%	15%	00	00	00	00	00	00	00	00
Why?										

Table 4.8: Teachers' Tendencies Regarding the Teaching Approaches

According to the analysis of the informants' profiles, most of them are novice teachers. 85% of them prefer to apply the CBA in their classrooms; however, only 15% of them prefer using the CLT approach. The findings above show that the CBA is the preferable approach, especially among novice teachers and few experienced ones who have received some training on it. To justify their choice, they stated that it is less complicated, and learners perform better. Some of them claimed that the other approaches embrace an overuse of unrealistic facts. The ones who chose the CLT approach assumed that within CBA, teachers have less work to do, and learners do not perform well and make many language mistakes. It can be deduced from the answers of the CLT supporters that language acquisition and mastery are the top priority for them and the development of competencies and skills can be developed during the learning process.

Q: 5. Which one do you like the least?										
Approach:	CBA	CLT	TCT	LCT	PBA	TBA	Audio Lingual	GTM	Suggesto -pedia	Eclectic (Various approaches)
Nb. Ts. :	**10**	**12**	**00**	**00**	**00**	**00**	**00**	**49**	**00**	**00**
Percentage :	14%	17%	00	00	00	00	00	69%	00	00
Why?										

Table 4.9: Teachers' Perceptions of the Least Used Approach

Table 4.9 shows that only 14% do not like the CBA because, according to them, it is not practicable because of classrooms crowdedness, lack of teaching tools, lack of motivation on the part of learners and lack of appropriate professional training. By analysing the different

responses in this item, the highest percentage (69%) represent the teachers who reject the GTM because they assume that it hinders learner-learner interaction and promotes mainly the teacher-learner pattern; the focus is primarily put on the mastery of language structures; consequently, the enhancement of higher thinking skills is majorly ignored. The table also reveals that 17% of teachers do not favour the CLT approach because, as they stated, the focus remains only on fluency in the target language, but accuracy is ignored; therefore, weaker learners continue to produce incoherent sentences which may eventually affect the meanings of messages.

Q: 6. Have you ever encountered the term 'problem-based learning'?	Yes	No
	39	**32**
	55%	45%
If yes, what does it means?		

Table 4.10: Teachers' Acquaintance with the Term Problem-Based Learning

The table above reveals that 55% of the informants were familiar with the term problem-based learning. For them, it means putting learners in real-life problem situations through tasks and ask them to find answers/solutions to those problems. This methodology urges learners to use higher-order thinking skills that require them to analyse, create, defend or evaluate their learning. However, 45% of the informants had no idea about the term. That is due to either the lack of knowledge or professional training. Overall, the findings show that most of the informants were familiar with the term problem-based learning which, once more, confirms teachers' knowledgeability.

Q: 7. Do you assign any problem-based activities to your learners? If yes, …	Yes	No		
	39	**32**		
	55%	45%		
A) how often?	always	Often	Sometimes	Rarely
	00	**02**	**16**	**03**
	00%	05%	41%	08%
B) name those activities.				

Table 4.11: Teachers' Responses to the Use of Problem-Based Activities

Table 4.11 indicates that the majority of the informants (55%) assigned problem-based activities to their learners; whereas, 45% never do because they did not have a clear idea about that methodology, and thus most of the activities mentioned by teachers are grammar-based:

passive/active voice, reported speech, the conditional and many other language structures though some teachers proposed other activities like debating and role playing. Few teachers have mentioned activities like the ones proposed in the textbook rubrics *Your Turn*, *Write It Up*, *Think, Pair, Share*, *Writing Development* and also the rubrics related to the project. It is, presently, noticeable that grammar is still the main focus of EFL instruction in the Algerian context. This was also noticeable in the classroom observation sessions attended by the researcher where most of the presented lessons in the third-year classes were grammar-focused.

Q: 8. Have you ever encountered the term 'cooperative learning'?	Yes	No	No answer
	21	**45**	**05**
	30%	63%	07%
If yes, what does it mean?			

Table 4.12: Teachers' Familiarity with the Term Cooperative Learning

The statistics in the table above show that most of the participants (63%) had no idea about cooperative learning and did not even know what the term means. However, only 30% of the informants were familiar with it and explained that it refers to the learning process that does not go in a one-way direction as it used to be within the traditional methods/approaches; instead, it is a bidirectional process, i.e. from teacher to learner and from learner to teacher. For others, cooperative learning is an instructional strategy in which small groups of learners work in pairs or groups on a standard task without too much interference from the teacher. In other words, learners work together in structured groups to reach common goals. They also added that it aims at fostering cooperation rather than competition. One of the participants stated that it is a process in which learners with different abilities work collaboratively to improve their understandings.

Q: 9. Have you ever encountered the term 'experiential learning'?	Yes	No	No answer
	25	**35**	**11**
	35%	49%	15%
If yes, what does it means?			

Table 4.13: Teachers' Familiarity towards the Term Experiential Learning

Table 4.13 shows that only 35 % of the informants did know what the term *experiential learning* means, but the majority (49%) did. The findings also affirm that the informants who did not have information on experiential learning lacked training and updated knowledge about

technical terms. According to some teachers, it meant the learner had to live what had been taught and experienced in class or outside school as in real-life situations. Another informant defined it as "the process of learning through experience and a reflection on what is being done". This definition goes in line with Kolb's (1984) EXL cycle as illustrated in the following figure:

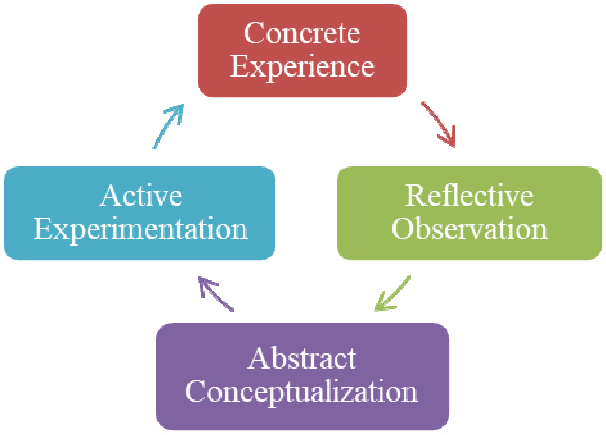


Figure 4.3: Kolb's Cycle of Experiential Learning

Q: 10. Have you ever encountered the term 'learner-centred teaching'?	Yes	No	No answer
	44	**18**	**09**
	62%	25%	13%
If yes, what does it means?			

Table 4.14: Teachers' Familiarity towards the Term Learner-Centred Teaching

Table 4.14 demonstrates that 62% of the respondents had an idea about learner-centred teaching. However, 25% of them responded negatively. According to the majority of the informants, learner-centred teaching is that learning process which is focused on the learner who becomes more responsible for his/her learning, and this encompasses the methods of teaching that shift the focus of instruction from the teacher to the learner: learner-centredness. In this regard, the CBA approach provides the teacher with the necessary tools to let the learner learn by him/herself but with the teacher's guidance, help and collaboration. Others stated that "it is a path to learner autonomy" where the teacher is no more the provider of knowledge and the controller, but instead s/he is a facilitator. They added that learners become less dependent on the teacher, which prepares them for research and investigation and thus for the university context.

Q. 11. How comfortable are you with lecturing, i.e. presenting and explaining lessons with details?	Very comfortable	Comfortable	Slightly comfortable	Un-comfortable
	12	**31**	**21**	**07**
	17%	44%	30%	10%

Table 4.15: Teachers' Responses on Lecturing

As the table above demonstrates, 44% of the informants are comfortable with lecturing; however, the minority (10%) is not. The majority of the informants admitted that they are very uncomfortable with learners' freedom to talk, especially in crowded classes because they consider that as noise. Most of those informants are teachers who are very familiar with the traditional teaching approaches where the teacher is at the centre of the teaching process: teacher-centredness. On the other hand and according to the analysis of the respondents' answers, the teachers using the new approaches respect Students Talking Time (STT) and know when the Teacher Talking Time (TTT) is necessary. It is noticeable that teachers still involuntarily favour the teacher-centred approach. This presumably reflects learners' behaviours in classrooms: passive, silent and detached listeners. The same atmosphere was witnessed by the researcher during the classroom observation sessions done for this study where most of the learners were passive and listening to the everlasting talks of the teachers, and where active learning was almost inexistent.

Q. 12. Who corrects learners' mistakes?	The teacher.	The peers
	47	**24**
	66%	34%
Why?		

Table 4.16: Teachers' Responses to the Correction of Learners' Mistakes

As the findings show, 66% of the informants agreed that the teacher is the one who mainly corrects learners' mistakes. In contrast, 34% claimed that learners should correct each other's work: peer-correction. Knowing when and how to correct learners' mistakes is one of the dilemmas facing most of the language teachers. The majority of the informants felt comfortable when correcting their learners' mistakes because, according to some of them, it is less time-consuming, and it allows them to finish their lessons on time. However, some of the teachers noted that learners could correct each other's mistakes because peer-correction could

create a positive climate in which learners could learn from each other and that the teacher is not the sole source of error-correction.

Q. 13. Who proofreads learners' written work?	The teacher	The peers
	54	**17**
	76%	24%
Why?		

Table 4.17: Teachers' Responses to Proofreading

As to question thirteen, the vast majority of the informants (76%) reported that they proofread their learners' written work all the time. In contrast, 24% of them stated that learners read each other's written work to encourage peer-assessment. According to the responses, the teachers who proofread their learners' written work mainly focus on time constraints; they want to save time so that they can finish the programme on time. They also noted that they want to correct their learners' mistakes to help them avoid those mistakes during the baccalaureate exam in order to pass it.

Q. 14. Do you apply individual work in class?	Yes	No	
	62	**09**	
	87%	13%	
If you do, how often?	Often	Sometimes	Rarely
	09	**35**	**18**
	15%	56%	29%

Table 4.18: Teachers' Responses to the Application of Individual Work

The findings above indicate that the majority of teachers (87%) generally apply individual work in their classes. Half of the teachers (56%) argued that they sometimes use this type of work while others (29%) claimed that they rarely use it in their language classes. Only 15% of the informants claimed that they often apply it because, according to them, learners using this kind of work feel more confident about what they already know and what they need to spend more time on. They added that learners work at ease when they use their favourite learning styles and strategies. However, the ones who answered that they rarely use it, prefer pair and group work. Those claimed that learners draw a lot of benefits while sharing ideas with peers. Others added that only group work can allow learners to compare, contrast and integrate their viewpoints which eventually will help them adjust their thinking.

Q. 15. Do you apply group and pair work in class?	Yes	No	
	51	**20**	
	72%	28%	
If you do, how often?	Often	Sometimes	Rarely
	06	**10**	**35**
	12%	20%	69%

Table 4.19: Teachers' Responses to the Application of Group/ Pair Work

The above table reveals that 72 % of the informants use both group and pair work in their classes. However, 69% of them affirmed that they rarely use them. 28% of them said they do not apply them in class because of they are time consuming, and once again they mentioned the issue of the programme completion and the baccalaureate exam. The minority (12%) often apply the pair/group work strategy. Therefore, the importance of using this method is that most teachers stated that learners get the chance to work with their peers and also learn from them. They also added that learners who struggle in their learning can learn better from more knowledgeable peers; in addition, it is especially beneficial for learners who favour interpersonal learning settings. Group work gives more opportunity for practice in which the Zone of Proximal Development increases. That is due to the activities that increase learners' creativity and higher-order thinking skills.

Q. 16. Do you encourage learners to visit the library and practise some tasks?	Yes	No	
	56	**15**	
	79%	21%	
If you do, how often?	Often	Sometimes	Rarely
	18	**30**	**08**
	32%	54%	14%

Table 4.20: Teachers' Responses to Encouraging Learners to Visit the Library

The table above shows that 79% of the informants encourage their learners to visit the library to do some assigned tasks because, according to them, it will improve gradually their autonomy and enhance their sense of responsibility. 54% of the respondents sometimes do, but the minority said that they rarely do so because the presence of the teacher is indispensable. The aim behind this questions is to see whether teachers encourage learners not only to depend on themselves without the teacher's help and omnipresence but also to cooperate with their peers to find the needed information outside the classroom setting.

Q. 17. Do you encourage learners to take part in decision-making discussions?	Yes	No
	40	**31**
	56%	44%

Table 4.21: Teachers' Responses to Encouraging Learners in Decision-Making

As the results in Table 4.21 reveal, 56% of the informants said they encourage their learners to take part in decision-making discussions. However, 44% of them answered negatively. The aim of this question is to see if teachers develop learners' decision-making skills, which are the required tools for effective management in learners' future professional careers. It is worth noting that decision–making stimulates self-determination in learners. It enables them to become autonomous, self-confident, self-regulated, and skilled planners who act and learn from the outcomes and later from life.

Q. 18. Do you adapt the tasks of the textbook according to learners' levels and learning styles?	Yes	No	
	41	**30**	
	58%	42%	
If you do, how often?	Often	Sometimes	Rarely
	09	**20**	**12**
	22%	49%	29%

Table 4.22: Teachers' Responses to Adapting the Tasks of the Textbook

As the table above reveals, the respondents were asked whether they adapt their teaching according to their learners' needs or they apply the "one-size-fits-all" approach. The results show that 58 % of the informants adopt the differentiated instruction. 49% of them reported that they sometimes adapt the tasks and even their teaching process accordingly while 22% noted that they frequently do. However, 29% of them disclosed that they never do. Though the pedagogical tools are numerous, yet teachers are urged to observe, know and incorporate what is appealing for learners and thus take into consideration the context of teaching, learners' readiness, interest, needs and learning profile levels.

Q. 19. Have you ever encountered the term 'learner autonomy'?	Yes	No	No Answer
	41	**20**	**10**
	58%	28%	14%
If yes, what does it means?			

Table 4.23: Teachers' Familiarity towards the Term Learner Autonomy

According to Table 4.23 data, the majority of the respondents (58%) have encountered the term learner autonomy and claimed that the term means the learner has to feel free to express his/her ideas, opinions and viewpoints and choose the ones which suit his/her interests or needs. They added that learners are less dependent on the teacher, and others define it as the learners' aptitude to take responsibility of their own learning. Moreover, they noted that learners have a responsibility towards their learning, and they are not supposed to be spoon-fed by teachers. They also stated that they encourage learner autonomy by giving learners more chances in decision-making inside the classroom and using group work. Other answers specified that the learner has to learn how to set goals, take independent actions, and be a self-regulated critical thinker and a self-reflection practitioner with the guidance of the teacher. It was also mentioned that autonomy is well-practised when learners have the ability to identify their strengths and weaknesses; additionally, when learners acquire a life-long learning skill; it will help them in their further studies and future professional lives. A participant noted that the more learners are involved in independent learning, the more they progress in the learning process. However, 28% of the participants do not know what it means and 14% left the box unanswered, presumably because they lack updated knowledge. Surprisingly, the findings stated in question 10 about learner-centred teaching are quite similar to the results of this question.

Q. 20. Do you encourage learner autonomy in your class?	Yes		No	
	58		**13**	
	82%		18%	
A) If you do, how often?	always	Often	Sometimes	Rarely
	03	**29**	**26**	**00**
	05%	45%	50%	00%
B. How do you do it?				

Table 4.24: Teachers' Responses to Encouraging Learner Autonomy

The table above shows that 82% of the informants said they encourage learner autonomy in their classes. Only 18% declared that they do not. The majority also stated that they often encourage autonomous learning by giving learners more chance in taking decisions and encouraging productive tasks; these tasks aim at encouraging them to depend on themselves in order to improve their thinking skills. In their answers, the teachers also noted that they:

- Encourage peer-assessment.
- Ask learners to do research and rely on themselves.
- Give learners more chances in decision making in the classroom.

- Encourage learner autonomy through problem-solving strategies.
- Ask learners to reflect on their own work.

Q. 21. How often do you provide your learners with the following types of instructions/strategies?	Very often		Sometimes		Rarely		Never	
Interpreting Pictures	**49**	69%	**18**	25%	**04**	06%	**00**	00%
Checking Answers	**39**	55%	**28**	39%	**04**	06%	**00**	00%
Role-Playing	**05**	07%	**37**	52%	**19**	27%	**10**	14%
Puzzle Games	**04**	06%	**03**	04%	**04**	06%	**60**	85%
Scrambled Items Games	**08**	11%	**09**	13%	**10**	14%	**44**	62%
Four Corners	**02**	03%	**11**	15%	**13**	18%	**45**	63%
Debates	**28**	39%	**30**	42%	**06**	08%	**07**	10%

Table 4.25: Teachers' Use of Active-Learning and Problem-Solving Strategies

Table 4.25 shows that 69% of the informants stated that they provide learners with the interpreting pictures strategy while others focused on other strategies like checking answers and debating. As for puzzle games, it is quite absent in the language class though it helps learners activate their cognitive abilities. 63% of the informants never used the *Four Corners* strategy. It is noticeable that teachers favour picture interpretation which is quite present in learners' textbooks. Some of the strategies, like games, are quite neglected by teachers, though those educational games "[...] do not have entertainment, enjoyment or fun as their primary purpose" (Michael & Chen, 2006, p. 21), but they rather improve the cognitive abilities of learners in terms of memory and reasoning. Those cognitive challenging tasks rise learners' motivation and make them work hard, which in turn will develop their strong cognitive skills. Furthermore, game-based learning promotes a sense of exploration, challenge, accomplishment and reward for all learners.

Q. 22. Do you incorporate all of Bloom's higher-order thinking skills, namely analysing, evaluating and creating in your teaching?	Yes	No
	50	**21**
	70%	30%
How?		

Table 4.26: Teachers' Responses to the Incorporation of HOTS

Figure 4.4: Teachers Responses to the Suggested Tasks to Incorporate Bloom's HOTS

The table and the figure above show that 70% of the informants incorporate Bloom's higher-order thinking skills in their teaching. They claimed that they apply this through problem-solving tasks from easy tasks to more complicated ones in which learners build new situations on the basis of their previous knowledge. As the figure above reveals, 40% of them stated that they incorporate these skills through asking questions and 08% through projects assignments. Though the findings show a positive answer, it requires great effort from teachers to adopt certain teaching practices like encouraging questioning and creative thinking, using graphic organizers and teach inference.

Q. 23. What type of questions do you ask your students?	How often?							
	Usually		Often		Sometimes		Rarely	
Close-ended (Choosing from a set of options)	**18**	25%	**26**	37%	**21**	30%	**06**	08%
Open-ended (No options provided)	**04**	06%	**05**	07%	**27**	38%	**35**	49%

Table 4.27: Teachers' Responses to the Type of Questions Asked in the Classroom

As the table above indicates that only 37% of the respondents often use close-ended questions in their classes; however, 49% claimed that they rarely use open-ended questions although such type enhances critical thinking. Question 23 attempts to investigate the teachers' types of questioning in the classroom. Questioning is a crucial element in the teaching/learning process. These findings are in line with the findings of the classrooms observation conducted in this study in which the majority of teachers mainly focus on questions that require recalling knowledge while a minority of them use questions that encourage critical thinking skills. Therefore, to engage learners in higher-level interactions, teachers need to plan and structure effective questioning.

Q. 24. How would you rate the questions you use in your classroom?			
Levels	Types	Nb. Ts.	Percentage
Higher-cognitive	Creating	**05**	07%
	Evaluating	**08**	11%
	Analysing	**10**	14%
Lower- cognitive	Applying	**10**	14%
	Understanding	**15**	21%
	Remembering	**23**	32%

Table 4.28: Teachers' Questions Rating

The results in Table 4.28 show that a significant rate of percentage (32%) goes to the teachers who admitted that the questions they mainly use in their teaching focus on remembering i.e. the lessons they taught them. 21% of them ask questions that seek understanding. As for the questions belonging to the applying and analysing level have the same percentage: 14%. The lowest rates were given to the higher-cognitive types of questions, namely evaluation and creation. These results go in line with the classrooms observation findings which demonstrate that most teachers' questioning types encourage lower-cognitive levels.

Q. 25. Have you ever encountered the term 'critical thinking'?	Yes	No
	40	**31**
	56%	44%
If yes,		
A. what does it mean?		
B. how can you apply it in your teaching?		

Table 4.29: Teachers' Familiarity towards the Term Critical Thinking

Table 4.29 shows that 44% have never encountered the term critical thinking; whereas, 56% of them claimed they have. As for its meaning, many teachers did not give an appropriate definition. However, some teachers define it as the process of analysing an issue or a situation by examining its origins in order to find a solution. Others defined it as the ability to think rationally and to analyse facts to form judgments. One of the teachers related it to open-mindedness. Another teacher stated that it is an essential skill which requires asking questions, analysing, making evaluation and judgement based on the information provided. Some answers stipulate that the process of critical thinking involves acquiring information and evaluating it to

reach a well-justified conclusion or answer. It also takes learners beyond rote learning and simple understanding of information. Few teachers added some suggestions on how they design tasks that foster and stimulate learners' thinking abilities such as providing them with questions and problem-solving tasks. Thanks to the answers provided, it becomes evident that the great majority of teachers know what the concept means, but when it comes to how to apply it, the researcher noticed during the observation sessions that classroom practices tend to confirm the hypothesis that most of the teachers lack practical professional training related to critical thinking.

Q. 26. Would you describe your learners as critical thinkers?	Yes	Somewhat	No
	09	**42**	**20**
	15%	59%	25%
Why?			

Table 4.30: Teachers' Perceptions of Their Learners as Critical Thinkers

This question aims at targeting teachers' perceptions of whether they consider their learners as critical thinkers. The table above shows that the majority of the respondents (59%) describe to some degree their learners as critical thinkers. According to them, their learners often ask pertinent and focused questions rather than content-based questions which learners usually ask. Other informants confirmed that though learners have a good sense of making arguments, yet the English language is still considered as a barrier for most of them, especially when they want to use it to express themselves. Others just stressed the point that critical thinking takes place mostly in scientific streams classes.

Q. 27. Out of the following aspects, which ones do you accentuate the most in your lessons?		
Questioning and evaluating so as to form judgments and make decisions;	**46**	65%
Clarifying viewpoints by asking important questions which lead to improved solutions;	**46**	65%
Understanding data and making conclusion essential in the best analysis;	**36**	51%
Reasoning using various processes suitable to circumstances;	**34**	48%
Analysing and determining the relationships of parts to a whole;	**33**	46%
Solving problems using conventional and innovative approaches.	**33**	46%
Engaging in self-reflection of experiences and processes;	**27**	38%
Interpreting alternative viewpoints and identifying their strengths;	**27**	38%
Making associations between information and opinions;	**25**	35%

Table 4.31: Teachers' Responses on CT Methodology Implementation in Lessons

The results in Table 4.31 show that most of the informants claimed that they accentuate the *questioning, evaluating* and c*larifying* processes in their lessons. However, it is noticeable that all the other processes got similar results and that teachers assumed that they sometimes stress those features in their instruction.

Q. 28. As a teacher, what do you see as your role or contribution to the development of learners' critical thinking?

This question aims at investigating teachers' awareness about their roles towards the development of learners' critical thinking. Therefore, the majority of teachers affirmed that their role is vital and that guidance stands as an important aspect in the whole learning process, yet most of them did not give a suitable strategy on how to contribute to this development. That is due, once again, to the lack of professional training. Some of the informants relate the development of critical thinking to the fact of encouraging learners to speak in class and interact freely.

Q. 29. What might hinder the development of critical thinking skills among learners?

As far as this question is concerned, most of the teachers reported that numerous obstacles could impede the development of learners' critical thinking skills, namely the lack of projects, time constraints due to the lengthy English programme and the lack of experience of the majority of teachers. They also added that the classrooms crowdedness and the noise it engendered did not allow the use of pair/group work and active learning strategies because of the lack of space in classrooms. However, some teachers pined all the responsibility on learners who, according to them, are passive, careless and noisy. In the same context, only few of the teachers maintained that most of the teachers do not know how to foster that skill.

Q. 30. What hinders the application of CT in your classroom?		
Factors		
Over-Crowded Classes	**66**	93%
Learners' Language Incompetence	**60**	85%
Programme Completion / Lack of Time	**45**	63%
Learners' Discouragement/Disengagement	**41**	58%
Learning Styles	**10**	14%
Self-Efficacy	**09**	13%

Table 4.32: Teachers' Responses on the Obstacles to the Use of CT in the Classroom

The results in the table above confirmed the results of question twenty nine and show that *over-crowded classes* and learners' *language incompetence* marked the highest rate (93%). However, more than half of the informants reported that *the programme completion, lack of time* (63%), *learners' discouragement and disengagement* (58%) hinder the application of CT in classes.

Q. 31. What do you suggest to overcome the obstacles mentioned in questions 29 and 30?

In the answers of question 31, teachers suggested many solutions to overcome the obstacles mentioned in questions 29 and 30; however, only one solution was suggested by almost all the teachers: the preparation of teachers through *professional teacher training* workshops on critical thinking methodology. They stated that all the factors, to some extent, hinder the application of CT, but the real issue is that teachers are not somehow aware of its methodology, and even if they have already heard about it, they do not know how to apply it in their classroom practice. Consequently, professional training could be a good solution to overcome this issue. Moreover, the informants suggested other solutions such as:

1. At the level of the MNE:
   - Designing a CT guide for teachers;
   - Reducing the length of the programme;
   - Revising and adapting the present programmes according to the 21st-century needs;
   - Limiting and minimising the number of learners per class (25 maximum);
2. At the level of the classroom:
   - Incorporating CT in lesson planning and designing a significant number of CT tasks;
   - Integrating ICTs in all classrooms and providing learners with materials that facilitate learning to improve their skills;
   - Using pair and group work.

Q. 32. Have you ever encountered the term 'Project-Based Learning' (PBL)?	Yes		No	
	30		**41**	
	42%		58%	
A. If yes, how did you get information on project-based learning?	Training workshops	Curriculum	Books	University courses
	05	**10**	**02**	**13**
	17%	33%	07%	43%
B. What do you think it means?				

Table 4.33: Teachers' Familiarity towards the Term Project-Based Learning

Table 4.33 shows that 58% of the informants do not have any idea about it. 42% of them do have a clear idea about what Project-Based Learning means. 17% of them said they got information on PBL through professional training workshops; whereas, 33% come across it in the syllabus. However, the majority of them learnt about it at university. The majority stated that PBL means engaging learners in real-world problem-solving situations. Besides, some of the informants related PBL to CT. One of the informants stated that PBL is one way to develop CT and especially creativity among learners. He added that they are supposed to use knowledge to develop skills and prepare real-life-based projects.

Most of those teachers who suggested those definitions confirm that they have known about PBL from their inspectors during some training sessions. Most of them were novice teachers. They will comprise an advantage if they profit from such indispensable support because those young teachers are often more accurate than their elders in their didactic approach. Hence, it is necessary to take into consideration the quality of professional training, particularly in its practical aspect because it is an essential factor of success for them. Any attempt to change the educational system should certainly pass through teachers. Without their significant contribution and their goodwill, all the attempts for the educational system reformation and intelligent provisions are doomed to failure. The inventory related to the implementation of the PBL shows that the obstacles are numerous. Usually, when questioned about what hinders the implementation of the PBL, teachers provide multiple obstacles. To be in the comfort zone, they prefer to use the familiar traditional way of teaching and dispense 'knowledge' rather than destruct their assets and re-construct new ones.

Q. 33. Have you ever been trained on PBL in workshops by your inspector(s)?	Yes	No
	18	**53**
	25%	75%
If yes, what changes has it brought to your teaching?		

Table 4.34: Teachers' Responses towards PBL Training

The table above demonstrates that only 25% of the informants said they had already had an opportunity to attend some training sessions on PBL. 75% of them affirmed that they had never attended those training sessions, and some of them noted that they do not even know what it means. According to the statistics, it is clear that teachers lack training sessions on PBL, and this is one of the major obstacles that inhibits the implementation of PBL in classrooms. Because of this lack, teachers do not like to take risks and apply the PBL. On the other hand,

the ones who attended those training sessions asserted that they have become more aware of the importance of project pedagogy.

Q. 34. How much would an easy-to-follow guideline help you to adopt a project-based learning approach?	Very much	Very little
	60	**11**
	85%	15%
Why?		

Table 4.35: Teachers' Responses towards the Usefulness of Guidelines to Adopt PBL

Table 4.35 shows that 85% of the informants are eager to be provided with an easy-to-follow guide so that they can understand PBL well and adopt it. They want to get accustomed to the project-based approach. They claimed that PBL could help those plan and design projects/units more effectively so as to transform the language teaching process into a language-acquiring one. For some informants, PBL facilitates both the teaching and learning processes.

Q. 35. How much would a Teacher Professional Development programme help you to adopt a Project-Based Learning approach?	Very much	Very little
	60	**11**
	85%	15%
Why?		

Table 4.36: Teachers' Responses towards the Usefulness of TPD Programme to Adopt PBL

The table above displays the same results as question 34. Most of the informants (85%) agree that a teacher professional development (TPD) programme will improve their teaching and ability to guide their learners throughout the projects process properly. In the same vein, some of the informants stated that a TPD programme would help them apply the project-based approach in the classroom which, therefore, will help develop learners' critical thinking skills. Others claimed that such programme can afford them opportunities to collaborate and learn from their colleagues' teaching experience. However, only 15% of the informants answered negatively.

Q. 36. What is your definition of a project?

The majority of the teachers claimed that the project is a final product. They define it as an assignment given to learners at the end of each unit to recapitulate the lexical and grammatical notions learnt during the unit. Others define it as a process under which learners

go through some stages to produce an end-product in the form of a presentation. Most of the answers relate the project to cooperative work and real-world problem-solving situations. However, their definitions have not included any information about abilities and skills, the main ingredients in the preparation of projects.

Q. 37. Have you ever assigned any project work to your students?	Yes	No	No answer
	62	**04**	**05**
	87%	06%	07%
If no, what are the obstacles?			

If yes, how many projects do you assign to your students a year?				
Number of Projects:	0	1	2	+3
SE 1	**00**	**00**	**66**	**05**
	00%	00%	93%	07%
SE 2	**00**	**00**	**66**	**05**
	00%	00%	93%	07%
SE 3	**68**	**03**	**00**	**00**
	96%	04%	00%	00%

Table 4.37: Teachers' Responses towards Project Work Assignments

These questions aim at showing to what extent teachers provide learners with projects, and primarily whether third-year learners are assigned projects. The results show that almost all teachers never assign projects to third-year learners because of the length of the programme and time constraint vis-à-vis the baccalaureate exam. 93% of the informants disclosed that they assigned projects to first and second-year learners because their English programme is easy to apply, and they have enough time to finish it. One of the informants stated that teachers do not assign projects because they assume that learners either neglect or are not aware of copyright violation norms, so they use Internet to copy and paste information and present it as if it is theirs. They added that learners give no personal touch to the elaborated work. In this case, teachers are urged to provide guidance and advise learners to avoid those infringements before they start working on projects.

Q. 38. Before assigning a project to your students,		
A. do you provide them with guidelines about the project preparation process?	Yes	No
	60	**07**
	85%	10%

B. do you make them aware of the drawbacks of copyright violation?	Yes	No
	67	**04**
	94%	06%

C. do you advise them to collect information for their projects through		
	Yes	No
- face to face interviews?	**29**	**25**
	41%	35%
- questionnaires?	**37**	**17**
	52%	24%
- field visits?	**22**	**32**
	31%	45%
- the Internet?	**43**	**11**
	61%	15%
- books?	**34**	**20**
	48%	28%
- newspapers?	**19**	**35**
	27%	49%

D. do you provide them with the following project management tools?		
	Yes	No
- Project Team Rules:	**15**	**56**
	21%	79%
- Project Team Contracts:	**05**	**66**
	07%	93%
- Project Management Log/Team Tasks:	**10**	**61**
	14%	86%

Table 4.38: Teachers' Responses towards the Preparation of Project Work

The results show that 85% of the informants admitted that they provide learners with the guidelines of the project preparation process while only 10% of them answered negatively. Almost all of the informants (94%) stated that they often raise learners' awareness about copyright violation, especially the copy-paste act from the Internet. As for the data collection, most of the informants encourage learners to use the Internet, face to face interviews and books as a means for data gathering. However, the majority of the informants never provide learners with project planning forms or management tools such as projects team rules, projects team contracts, project assessment tools as provided and recommended by the 3AS accompanying document. Therefore, what can be deduced from these results is that teachers lack strategies on how to plan and guide learners throughout the project process effectively and successfully.

Q. 39. How many project topics do you suggest to them for each unit/theme?				
Number of Projects:	1	2	3	+4
Nb. Ts. :	**33**	**28**	**10**	**00**
Percentage :	46%	39%	14%	00%

Table 4.39: Teachers' Responses to the Suggested Number of Project

The results in the table above reveal that projects are not really encouraged in the EFL classroom. 46 % of the informants stated that they assign only one project a year, and 39% of them attribute two. However, a minority said they assign three projects, especially for second-year classes because their programme is quite light and could be finished before the end of the school year. Though the syllabus and the textbook are project-based, some teachers admitted that they assign only one project per year because of some hindrances such as time constraints, the length of the first and third-year programmes, the lack of ICTs in schools and over-crowdedness of classes.

Q. 40. Do you encourage Voice and Choice? (Encouraging students to make choices on which topic(s) they will work on, how to work, how to use their time, and many other alternatives.)	Yes	No
	62	**09**
	87%	13%

Table 4.40: Teachers' Perceptions of the Use of 'Voice and Choice'

The results reveal that almost all the informants (87%) invited learners to take a vital part in choosing the topic, planning and organizing their projects. In contrast, only 13% of them answered negatively. These findings show that teachers do encourage learners to share their voice and be at the centre of the learning process since learner-centredness and autonomy lead

to more engaging learners in the learning process. Therefore, this kind of teaching would benefit learners not only in the classroom but also throughout life.

Q. 41. Do you provide learners with project topics that have real-world/community connections?	Yes	Somewhat	No
	39	**25**	**00**
	55%	35%	00%

Table 4.41: Teachers' Responses to Authentic Project Topics

The findings show that more than half of the informants (55%) claimed that most of the projects provided have real-world connections. They stated that the fact of bringing real-life into the classroom according to learners' interests, profiles, linguistic knowledge, and interactive ability could help them be more active and engaged in the learning process. 35% of the informants stated that they somewhat do because, according to them, not all the programme topics allow such connection. Although that is, teachers should know how to use 'authenticity'. In this vain, Steve Revington states:

> If learning is engaged solely in classroom settings, inferencing only real-world examples, it's vicarious learning, - it's not authentic learning. Authentic learning is relevant learning activated in a real world context.

Q. 42. Are the suggested project topics problem-based?	Yes	No
	44	**20**
	62%	28%

Table 4.42: Teachers' Responses to the Use of Problem-Based suggested Topics

The findings reveal that 62% of the informants admitted that the project topics suggested are problem-based while only 28% answered negatively. That implies that teachers are aware of the importance of the problem-based approach in fostering learners' critical thinking skills. Most of them stated that it is necessary to engage learners in problem-solving situations to make them reach solutions through analysing the problem, synthesizing and creating new solutions. They also mentioned that the implementation of problem-solving tasks in the classroom help learners develop their cognitive abilities and autonomy.

Q. 43. Before revision and feedback, do you inform students about the project evaluation criteria?	Yes	No
	21	**50**
	30%	70%

Table 4.43: Teachers' Responses about the Project Evaluation Criteria

The results show that the majority of the informants (70%) do not inform their learners about the project evaluation criteria. However, only 30% of them gave a positive answer which implies that teachers are not aware of the importance of the evaluation phase which encourages learners to design their projects effectively and reach the final goals. The evaluation criteria sheet should be available both in the planning and implementation phase so that learners can see their progress and make decisions on whether they keep going or maximising the occurring success of their project.

Q. 44. Before revision and feedback, do you provide learners with the following tools?		
	Yes	No
Project Assessment Checklist:	**20**	**51**
	28%	72%
Self-Reflection Questionnaire:	**15**	**56**
	21%	79%
If you do, explain why briefly.		

Table 4.44: Teachers' Responses about Providing Learners with Assessment Tools

The findings in table 4.44 reveal that almost all of the respondents (72%) admitted that they do not provide their learners with the project assessment checklist and self-reflection questionnaire. The self-reflection phase or the project debriefing is an essential step that allows learners or the project team to reflect on the process, the choices, the achievements they make, and whether the project has met all the requirements needed. In this step, learners are provided with a chance to share experiences, ideas in a more relaxing atmosphere.

Q. 45. After the projects presentations,				
A. what do you assess?	Individual student	The group	The product	All
	06	**17**	**12**	**36**
	08%	24%	17%	51%
B. what do you focus on more when you assess the students or/and the product?				
Language	Fluency	Originality	Attitudes	
22	**06**	**24**	**19**	**22**
31%	08%	34%	27%	31%
C. How do you assess the students or/and the product?				

Table 4.45: Teachers' Perceptions of Projects Assessment

As far as assessment is concerned, half of the respondents (51%) claimed that they assess the product, the group and each learner. Moreover, 24% of them admitted that they evaluate learners as a team. 31% of the informants reported that they focus on language when they assess the project and 34% said the focus is put on originality. One of the informants stated that the evaluation process should cover two sides. The first one is the content in terms of authenticity, organization and relevance and the second one is the oral skill (presentation) of each group member.

4.6. Analysis and Results of Learners' Questionnaire

This section deals with the analysis of the learners' questionnaire. The aim of which is to answer the third research question which investigates third-year EFL learners' attitudes and degree of motivation towards learning English and doing projects in the English class. The data collected is presented in a form of tables including the number and percentage of informants' answers. It also includes pie charts for the total percentage that are followed by analyses and discussions of the results for each question.

Q. 1. Do you like to learn English?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**36**	59%	**44**	55%	**36**	73%
No:	**10**	16%	**06**	08%	**03**	06%
Somehow:	**15**	25%	**30**	38%	**10**	20%
Total:	**61**	100	**80**	100	**49**	100

Table 4.46: Learners' Attitudes towards English

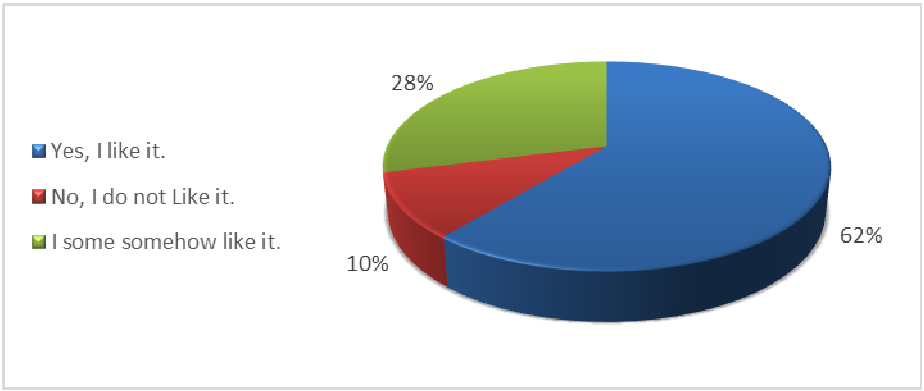


Figure 4.5: Total Percentage of Learners' Responses about Their Attitudes towards English

The figure above shows that the most significant percentage (62%) covers the learners of all streams who like learning English. This value reveals that the majority of those learners

are aware of the worthiness of English and its benefits. However, Table 4.46 shows that the rates of learners who like English in the scientific stream are a bit higher than the literary stream. That is probably due to their awareness that English is an essential language in scientific research. However, the lowest percentage (06%) of learners who do not like English concerns only the foreign languages stream. This minority is composed of learners who could have been orientated towards the FL stream without considering their profiles.

Q. 2. Do you think that English will be useful to you in the future? Explain how?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Very useful:	**39**	64%	**67**	84%	**44**	90%
Not useful:	**22**	36%	**13**	16%	**05**	10%
Total:	**61**	100	**80**	100	**49**	100

Table 4.47: Learners' Opinions about the Usefulness of English in the Future

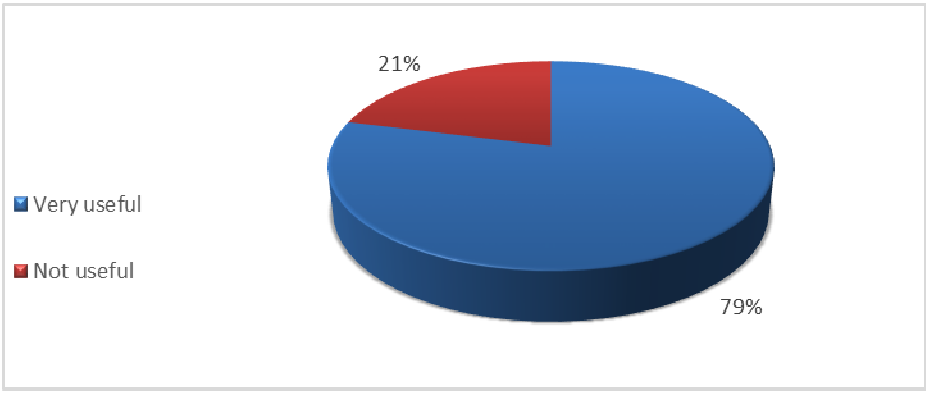


Figure 4.6: Total Percentage of Learners' Opinions about the Usefulness of English in the Future

The results in Figure 4.6 show that 79% of the informants declared that English is an advantageous language, and they need it in the future either for further studies or in the workplace outside Algeria. According to some of them, English is useful because it is the most spoken language in the world, and it will give them different job opportunities in the future. Others claim that this language makes travelling more accessible and allows them to know the different cultures of the world communities. Moreover, a significant number of respondents (90%) in the FL stream share the same idea and attested that they will do further studies in English at the university. These findings confirm that a great majority of learners are aware of the importance and usefulness of English. Whereas, 21% of the participants from all streams affirmed that English is not the sole important subject and claimed that it is only one of the

challenging subjects. As a matter of fact, most of the learners who showed their lack of motivation towards learning English were from rural areas schools. A consistent number of learners in those rural areas neglect foreign languages learning which is, in fact, a common problem in the Algerian rural context. Therefore, those learners do not recognize English as an essential tool for the future.

Q. 3. According to you, why do you need to learn English? Choose ONE item and mark the right box with "X".						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
To communicate with people around the world.	**28**	46%	**48**	60%	**05**	10%
Because I need it in my studies.	**19**	31%	**23**	29%	**36**	73%
To use it when I travel abroad.	**08**	13%	**07**	09%	**02**	04%
I feel good when I speak it.	**06**	10%	**02**	03%	**06**	12%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.48: Learners' Responses on the Importance and Usefulness of Learning English

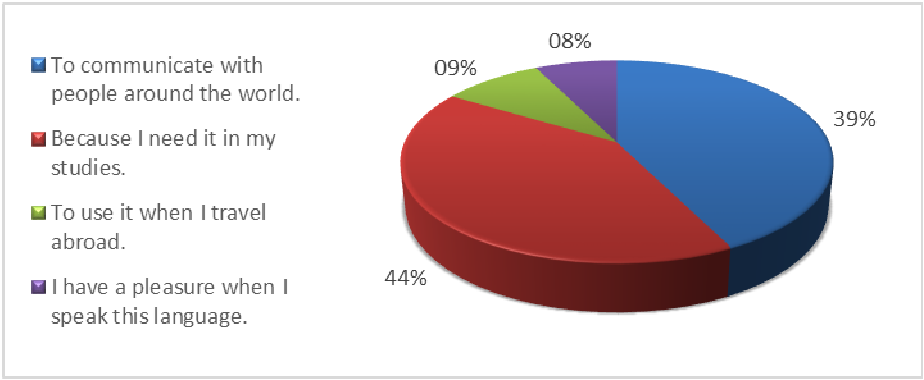


Figure 4.7: Total Percentage of Learners' Responses on the Usefulness of Learning English

For this issue in correlation with motivation for which learners choose only one item, the statistics show that the majority are learners with integrative motivation because 39% of them claimed that they learn it in order to be able to communicate with people. 09% affirmed that they need it when they travel while 08% of them just find it fan to speak English. However, 44% of them are instrumentally motivated because they assumed they will certainly need English for further studies, especially in foreign countries.

Q. 4. Are you interested in going further in learning English?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**35**	57%	**42**	53%	**43**	88%
No:	**26**	43%	**38**	48%	**06**	12%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.49: Learners' Interest in Doing Further Studies in English

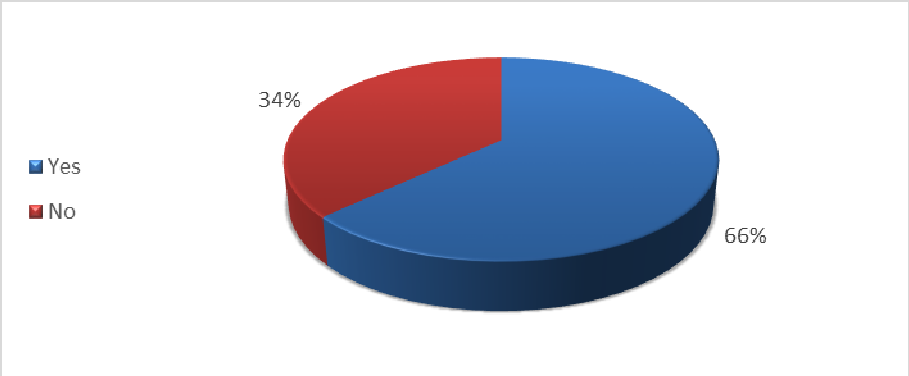


Figure 4.8: Total Percentage of Learners' Responses about Their Interest in Doing Further Studies in English

Figure 4.8 shows that the most significant percentage (66%) covers learners who show great interest to do further studies in English, especially FL learners. 88% of them have positive attitudes towards learning the English language. Additionally, the results of both the literary (57%) and scientific (53%) learners show an average rate.

Q. 5. Are you interested in doing projects in English?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**31**	51%	**46**	58%	**41**	84%
No:	**30**	49%	**34**	43%	**08**	16%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.50: Learners' interest in Doing Projects in English

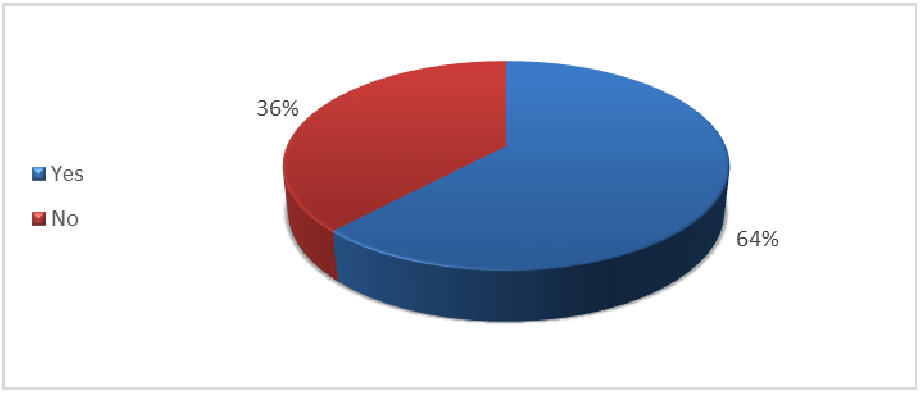


Figure 4.9: Total Percentage of Learners' Responses about Their Interest in Doing Projects in English

Figure 4.9 reveals that most of the informants (64%) showed an intense interest in doing projects in English; most of them (84%) were FL learners. Whereas 36% of the respondents said the opposite, and so far, they were both literary and scientific learners. Though a significant rate of findings shows a positive attitude towards projects, some learners may still need some support from their instructors.

Q. 6. Do you do projects in the English class? How many?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**18**	30%	**21**	26%	**29**	59%
No:	**43**	70%	**59**	74%	**20**	41%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.51: Number of Projects Done in Class

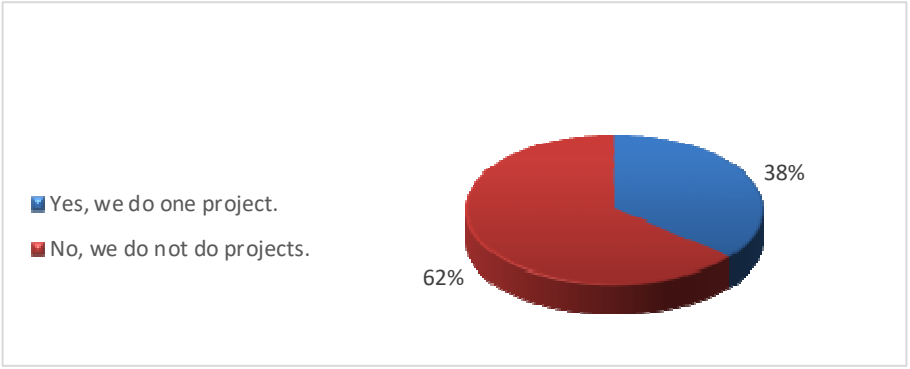


Figure 4.10: Total Percentage of the Number of Projects Done in Class

The results mentioned above show that most of the informants (62%) said that they do not do projects in the English classes. As shown in the pie chart above, only 38% of the informants acknowledged they do only one project though in the syllabus the projects should be

done four times a year i.e. at the end of each unit. Therefore, it may be concluded that classroom practices do not go in line with what the syllabus designers expected and designed in the syllabus. That is one of the hindrances that impede the development of higher-order thinking skills and prevent learners from exercising their intellectual virtues. Such practice can hinder the enhancement of open-mindedness, fair-mindedness, curiosity, creativity and cooperative work.

Q. 7. Are you motivated to do projects? If no, why?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**20**	33%	**15**	19%	**11**	22%
No:	**41**	67%	**56**	70%	**38**	78%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.52: Learners' Motivation in Doing Projects

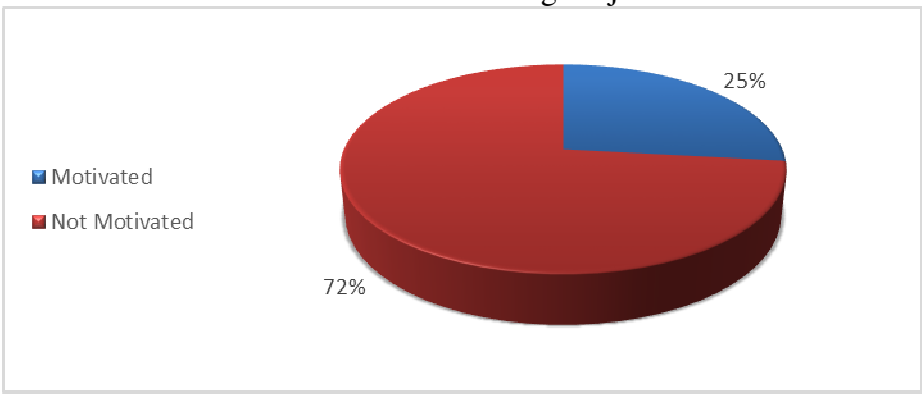


Figure 4.11: Total Percentage of Learners' Responses towards Their Motivation in Doing Projects

Figure 4.11 shows that the majority of learners (72%) are unmotivated, and only 25% of them are motivated to do projects. However, it is noticeable from the results of question seven above that most of the scientific stream learners are unmotivated undoubtedly because they do not do projects with their teachers. As mentioned in the analysis of question five, even if some learners are interested in doing projects, they still need a teacher to motivate them. Negative attitudes and lack of motivation can stand as a barrier in language classes. Therefore, it is worth pointing out that motivation is an imperative factor for the implementation of PBL, and thus teachers' practices and behaviours in the classroom play a vital role in encouraging learners to do projects.

Q. 8. How do you find projects in English?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Easy to do:	**04**	07%	**29**	36%	**33**	67%
Not very easy:	**27**	44%	**31**	39%	**16**	33%
Difficult:	**30**	49%	**20**	25%	**00**	00%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.53: Learners' Opinion about Projects

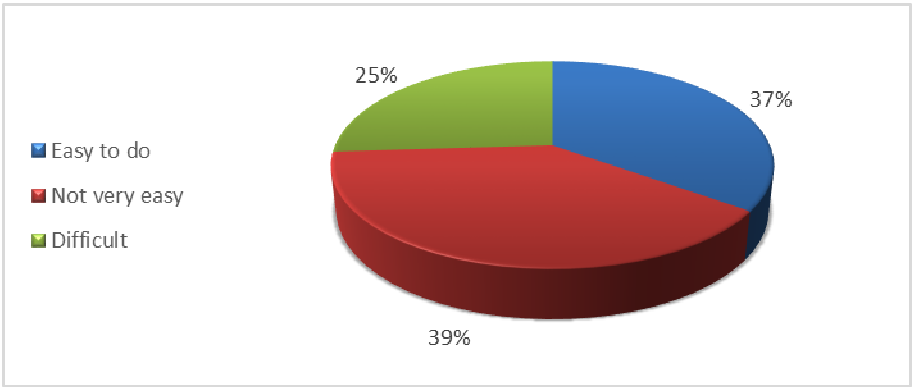


Figure 4.12: Total Percentage of Learners' Responses about Their Opinion on Projects

The statistics in the pie-chart above point out that 39% of the informants acknowledged that projects in English are not an easy task to do. However, 25% of them recognised that they are really complicated, and 37% maintained that they are easy to do. Presumably, it is under the responsibility of the teacher to make learning easier because learners who are inspired by their teachers can achieve more incredible things that might be useful in the future. Thus, it is up to the teachers' behaviours and instructions to make the classroom an exciting atmosphere for learning. It requires good planning, guidance and encouragements to enhance learners' readiness to do projects.

Q. 9. Do you think that projects will help you improve (develop) your English?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**52**	85%	**61**	76%	**47**	96%
No:	**09**	15%	**19**	24%	**02**	04%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.54: Learners' Opinion about Improving their English through Projects

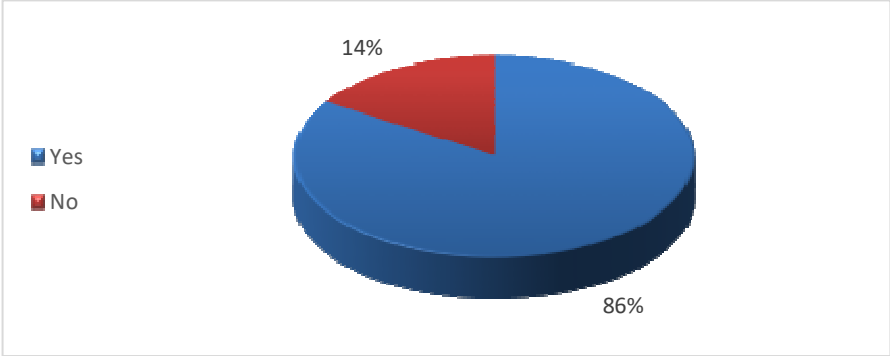


Figure 4.13: Total Percentage of Learners' Opinion about Improving Their English through Projects

Pie-Chart 4.12 above summarizes the findings of learners' opinions about improving their English through projects; thus, a great majority of respondents (86%) showed a positive attitude. Nevertheless, only 14% of the learners displayed a negative attitude which, according to their answers, is due to the fact that projects cannot improve their English. Some of them stated that lessons are more important than projects. Such an assumption is due to the importance they give to the acquisition of knowledge for the baccalaureate exam. However, doing projects in English allows learners not only to improve different competencies but also to interact and practise the language in a context and in a meaningful way so that they will be able to use it for communicative purposes outside the classroom.

Q. 10. Do you think that you may face obstacles (problems) while doing projects? If yes, what are they?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**46**	75%	**53**	66%	**31**	63%
No:	**15**	25%	**27**	34%	**18**	37%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.55: Learners' Perception of the Obstacles Hindering the Project Process

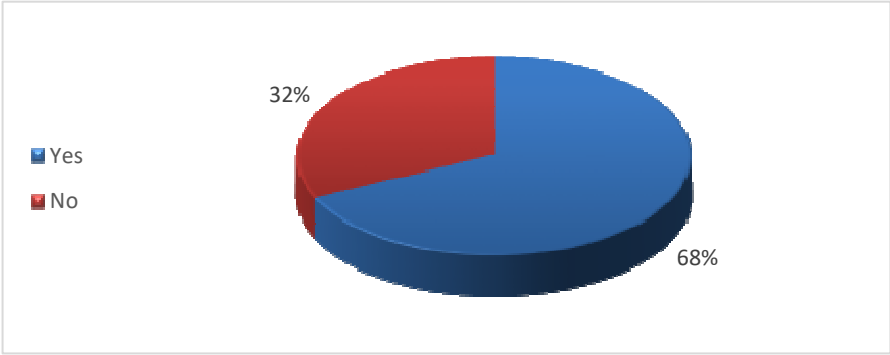


Figure 4.14: Total Percentage of Learners' Perception of the Obstacles Hindering the Project Process

As the findings in Figure 4.14 show, the majority of the respondents (68%) admitted that they 'often' face many problems in doing projects which do not motivate them to do research. In comparison, 32% of the respondents asserted that they do not face any obstacles. The main hindrances that the majority of learners mentioned are the lack of means, Internet inaccessibility, unmotivated peers, time constraints, language deficiency, mother tongue interference, and the unsuitable project topic chosen by the teacher.

Q. 11. Do you have access to Internet in your high school?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**00**	00	**00**	00	**00**	00
No:	**61**	100	**80**	100	**49**	100
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.56: Learners' Access to the School Internet

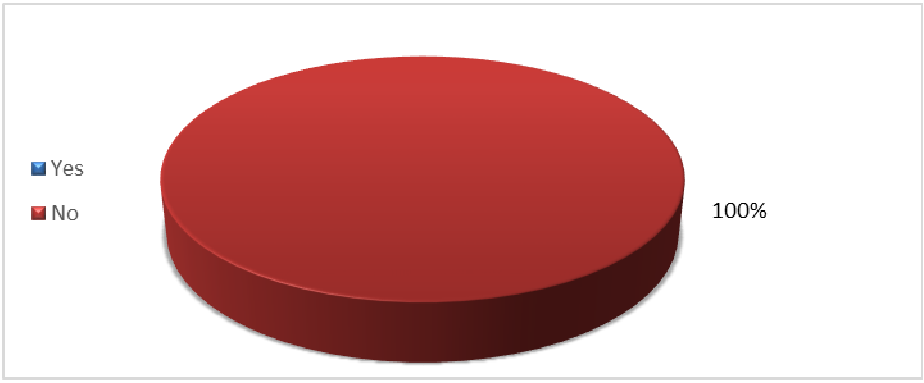


Figure 4.15: Total Percentage of Learners' Access to School Internet

All of the learners (100%) declared that they do not have access to Internet in their schools. It is noteworthy that today the ICTs are indispensable, and their integration in education makes research easier for learners. They use them according to their needs and interests. Therefore, this unavailability stands as one of the main obstacles that handicap the enhancement of learners' autonomy and research willingness and thus obstructing the implementation of PBL.

Q. 12. According to you, is the role of the teacher important to motivate you to do projects?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**56**	92%	**77**	96%	**43**	88%
No:	**05**	08%	**03**	04%	**06**	12%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.57: Learners' Opinion about the Teacher's Role Importance

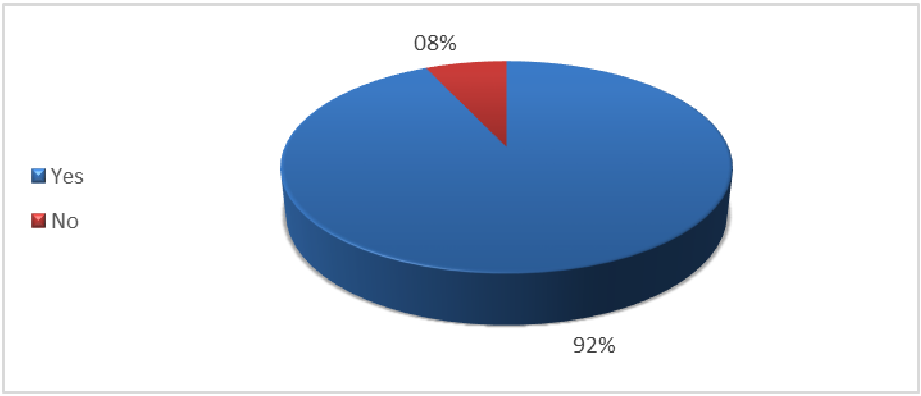


Figure 4.16: Total Percentage of Learners' Opinion about the Teacher's Role Importance

Figure 4.15 shows that most of the respondents (92%) confirmed that the role of the teacher is vital in motivating them to do projects. As a matter of fact, it is agreed that motivated teachers motivate their learners to learn. Generally, energetic and enthusiastic teachers display a positive attitude to how they perform (Schiefele & Schaffner, 2015), and therefore, their learners' motivation increases. Teachers' interest in doing projects in the classroom could foster learners' motivation and interest and make them intrinsically engaged. Though most of the learners are interested in doing projects, as mentioned previously, some learners learn when the classroom environment is conducive and motivating. Yet, teachers should create an atmosphere that encourages learners to learn by enhancing learners' autonomy (Schuitema et al., 2016). Teachers who encourage learners' freedom to choose and to set their goals and objectives succeed in helping them develop personal engagement and interest and thus increase their motivation (Schuitema et al., 2016).

Q. 13. In your opinion, what is the resource information that would help you prepare projects? Why?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Internet:	**57**	93%	**65**	81%	**37**	76%
Books:	**04**	07%	**15**	19%	**12**	24%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.58: Learners' Preferences for Research Resources

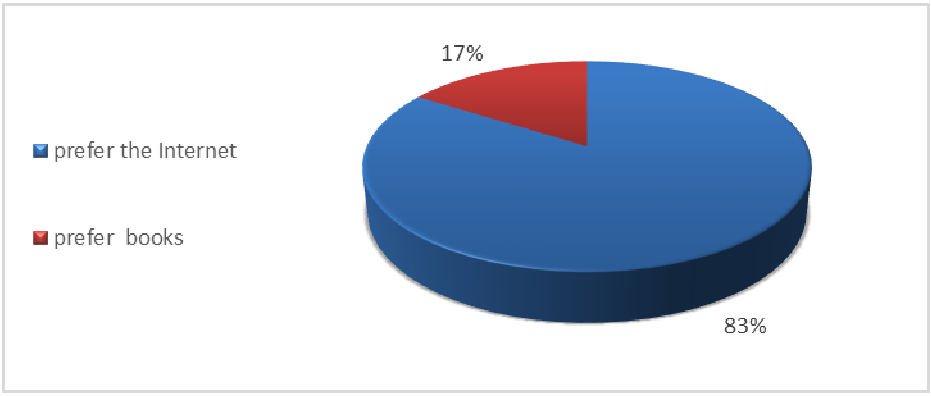


Figure 4.17: Total Percentage of Learners' Preferences for Research Resources

Figure 4.16 reveals that almost all the learners (83%) preferred to use Internet to do projects. According to them it is less time-consuming, and it serves as an excellent tool for getting data instantly, learning and doing research. Still, only 17 % of the respondents, mainly the scientific and FL learners, prefer using books, newspapers and magazines as a means to conduct projects and that is due mainly to the unavailability of Internet in schools.

Q. 14. In the English class, do you prefer to study more often in groups, pairs or individually? Why?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Individually:	**11**	18%	**17**	21%	**07**	14%
Pairs:	**23**	38%	**29**	36%	**10**	20%
Groups:	**27**	44%	**34**	43%	**32**	65%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.59: Learners' Perception of Classroom Management

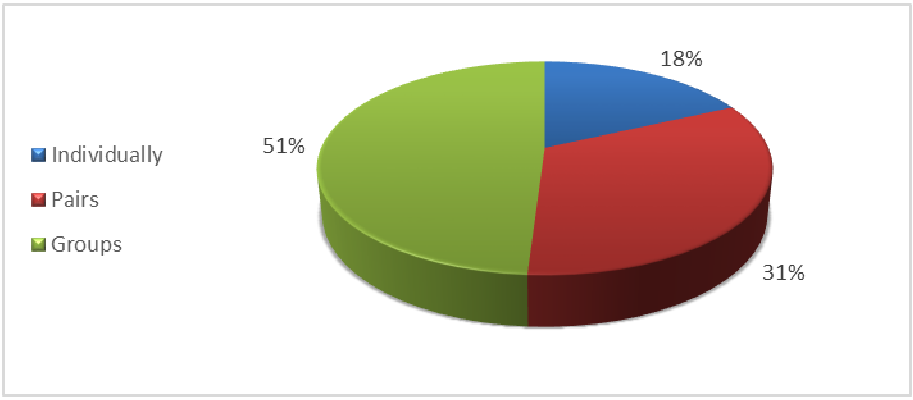


Figure 4.18: Total Percentage of Learners' Perceptions towards Classroom Management

The statistics on Pie-Chart 4.17 indicate that the results have almost similar perspectives on pair and group work. 51% of respondents affirmed that they prefer to work in groups because they claimed that this might help them learn from each other. To highlight the importance of group work, one of the respondents justified her/his choice in Arabic and stated: "يد واحدة لا تصفق" which goes line with the Chinese proverb: "you can't clap with one hand only". Moreover, 31% of respondents asserted that they learn better when they work in pairs. Some of them said that in pair work there is less noise in the classroom than when they work in groups. However, only 18% of respondents preferred individual work. In this vein, they claimed that working alone saves time and working in groups provokes endless discussions and therefore consumes time. But on the whole, the results imply that learners highly value pair and group work, and these results may consequently encourage teachers to pursue more group and collaboration work so that learners embrace deep learning.

Q. 15. If you were asked to do projects, do you prefer to do them individually or collaboratively? Why?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Individually:	**15**	25%	**35**	44%	**13**	27%
Collaboratively:	**46**	75%	**45**	56%	**36**	73%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.60: Learners' Preferred Way of Doing Projects

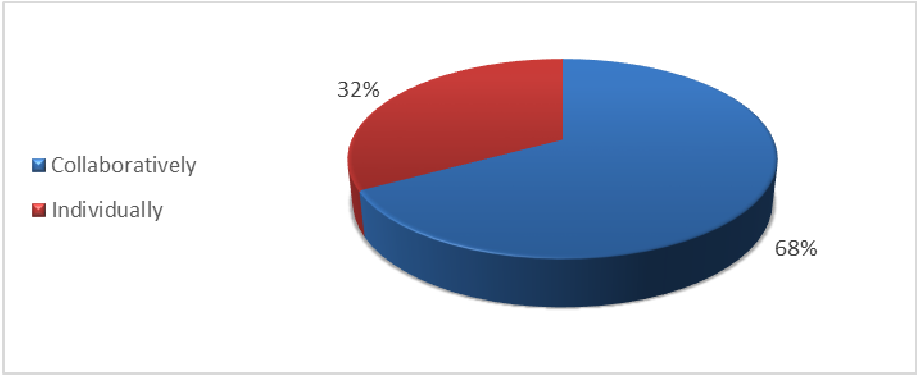


Figure 4.19: Total Percentage of Learners' Responses on Their Preferred Way of Doing Projects

For question 15, nearly most of the respondents (68%) affirmed that they prefer to do projects collaboratively in order to share ideas and uncover new ones. However, 32% of them affirmed that they like to do projects individually because, according to them, it is difficult to

agree with each other and to meet with classmates outside the classroom. Others with the same view claimed that they do not like to rely on others and that not all people in the group show interest in doing the same tasks. Such reaction infers that learners' sense of competition prevails. Though individual work helps to consolidate skills, yet it is less effective in strengthening understanding and developing deep learning (Briggs & Moore, 1993). Thus, the positive findings might be taken as evidence of the need for enhancing more projects in the EFL class, and hence encouraging collaborative work and developing other abilities such as higher-order thinking skills.

Q. 16. Do you think that you will learn anything when you do projects? If yes, what do you learn?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes:	**43**	70%	**65**	81%	**39**	80%
No:	**18**	30%	**15**	19%	**10**	20%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.61: Learners' Perceptions of Learning through Projects

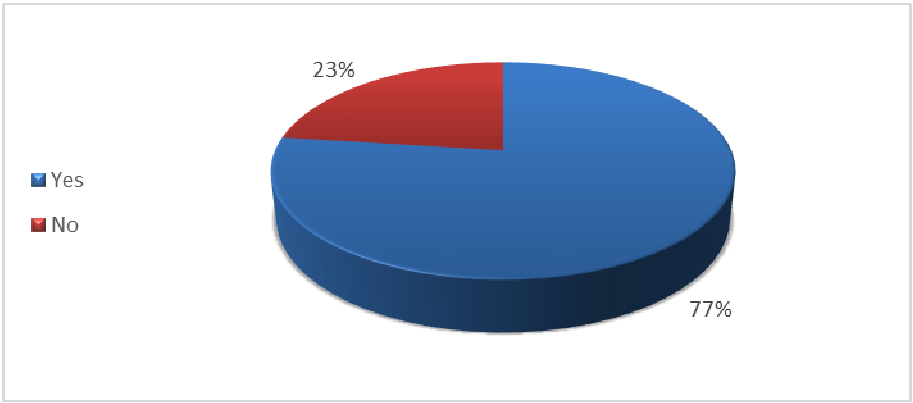


Figure 4.20: Total Percentage of Learners' Perceptions of Learning through Projects

The results in Figure 4.20 show that most of the respondents (77%) admitted that they often learn something new when they accomplish projects. They stated that they learn to be responsible and acquire some new vocabulary that they did not know before. Nevertheless, 23% answered negatively. These findings affirm that projects are beneficial to learners since they ingrain essential social skills, improve self-confidence and help them acquire new knowledge and learn how to use multiple problem-solving methods to find solutions both on their own and with the help of a team. As a result, their success outside the learning setting could be assured.

Q. 17. Do think that you learn most from your projects or from the projects of your classmates? Why?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
My Projects:	**22**	36%	**53**	66%	**26**	53%
My Classmates' Projects:	**39**	64%	**27**	34%	**23**	47%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.62: Learners' Viewpoint about the Most Effective Way of Learning from Projects

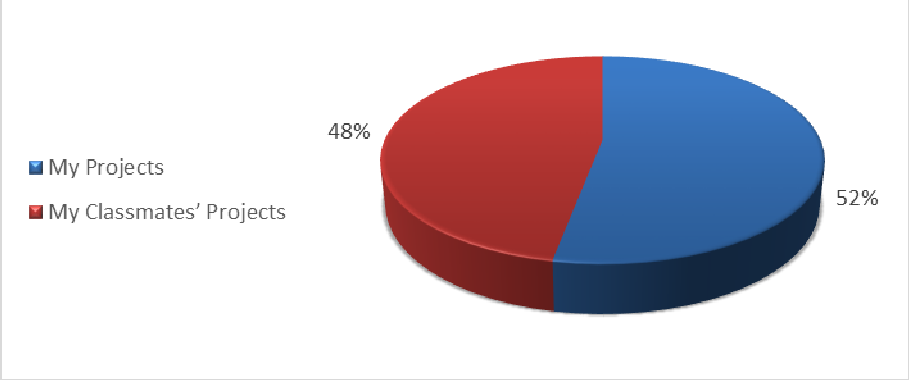


Figure 4.21: Total Percentage of Learners' Viewpoint about the Most Effective Way of Learning from Projects

Concerning learners' viewpoint about learning from their projects or their classmates', the results are quite similar. 52% stated that they learn most from their projects because they think that effective learning occurs through personal experiences. Nevertheless, only 48% of the informants confirmed that they learn more from their classmates' projects. They claimed that there is always something new to learn from peers.

Q. 18. In your opinion, who should choose the topic of the project? You or your teacher or both? Why?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
I choose the topic:	**12**	20%	**04**	05%	**20**	41%
My teacher does:	**33**	54%	**61**	76%	**26**	53%
Both of us do:	**16**	26%	**15**	19%	**03**	06%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.63: Learners' Opinions about the Project Topic

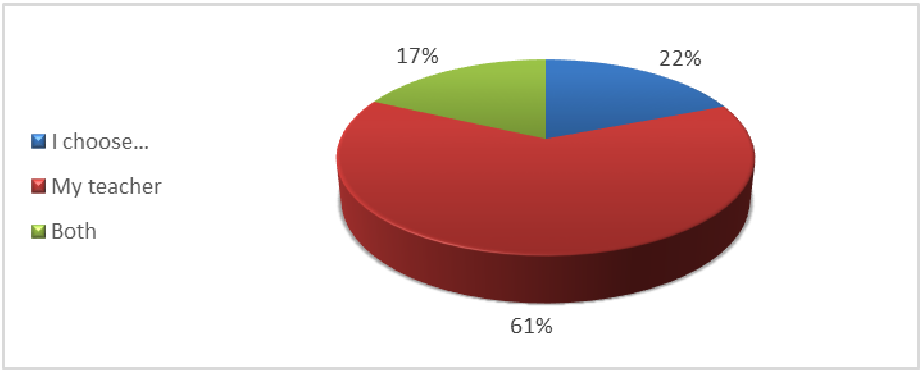


Figure 4.22: Total Percentage of Learners' Opinions about the Project Topic

The statistics show that 61% of the informants believe it is the responsibility of the teacher to decide on the project topic. In comparison, 17% claimed that both the learner and the teacher can choose the topic to be discussed to avoid inconsistency. Moreover, 22% of the informants stated that the learner should be free to choose the topic s/he likes in order to enhance motivation. The results imply that learners still rely on their teacher and they still do not realize that they should be responsible of their learning and therefore choose what to learn, how to learn it and when to learn it. For more effective learning, EFL classrooms should shift from teacher-centredness to learner-centredness to ensure life-long learning.

Q. 19. What do you do if you do not like the topic of the assigned project?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
I ask the teacher to change the topic:	**33**	54%	**39**	49%	**39**	80%
I accept, and I do it even if I am not satisfied:	**03**	05%	**10**	13%	**00**	00%
I try to change the group:	**25**	41%	**31**	39%	**10**	20%
Total:	**61**	100%	**80**	100%	**49**	100%

Table 4.64: Learners' Reaction to Non-Motivating Projects

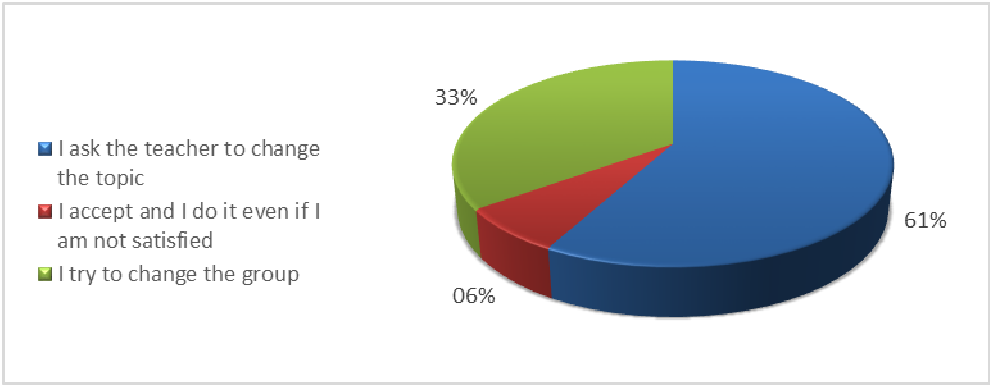


Figure 4.23: Total Percentage of Learners' Reaction to Non-Motivating Projects

The statistics in Figure 4.23 show that more than half of the informants (61%) confirmed that they favour asking the teacher to change the topic. 33% of them prefer asking the teacher to allow them to change the group. However, only 06% of the respondents said that they accept the teacher's choice and do the work even if they do not like the topic.

Q. 20. Do you think that you could take part in evaluating your projects or it is the duty of the teacher?						
Learners' Answers:	LS		SS		FLS	
	Nb. St.	%	Nb. St.	%	Nb. St.	%
Yes, I could:	**02**	03%	**19**	24%	**30**	61%
No, it is the duty of the teacher:	**59**	97%	**61**	76%	**19**	39%
Total:	**61**	100	**80**	100	**49**	100%

Table 4.65: Learners' Opinions about the Project Evaluation

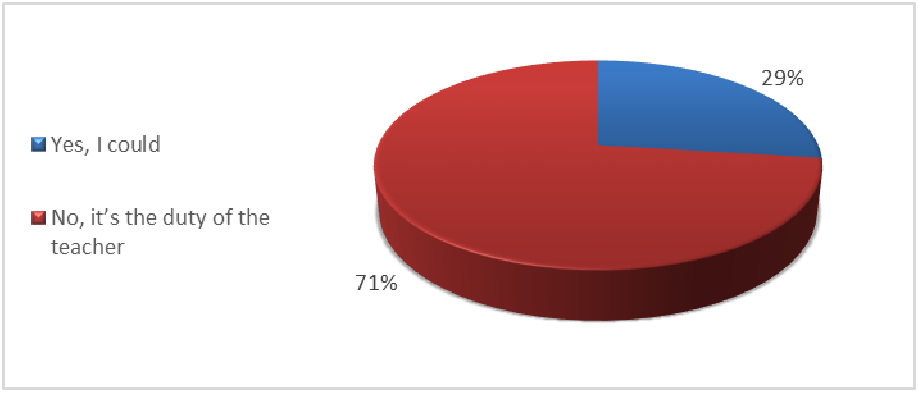


Figure 4.24: Total Percentage of Learners' Opinions about the Project Evaluation

The results in Figure 4.24 reveal that the majority of learners (71%) stated that the teacher is the sole responsible for the evaluation of the project. That implicates that these learners are not informed about the evaluation criteria of the project that should be administered to learners in the planning phase before they start tackling the project. Nevertheless, only 29% think that it is possible to take part in self-assessment or peer-assessment.

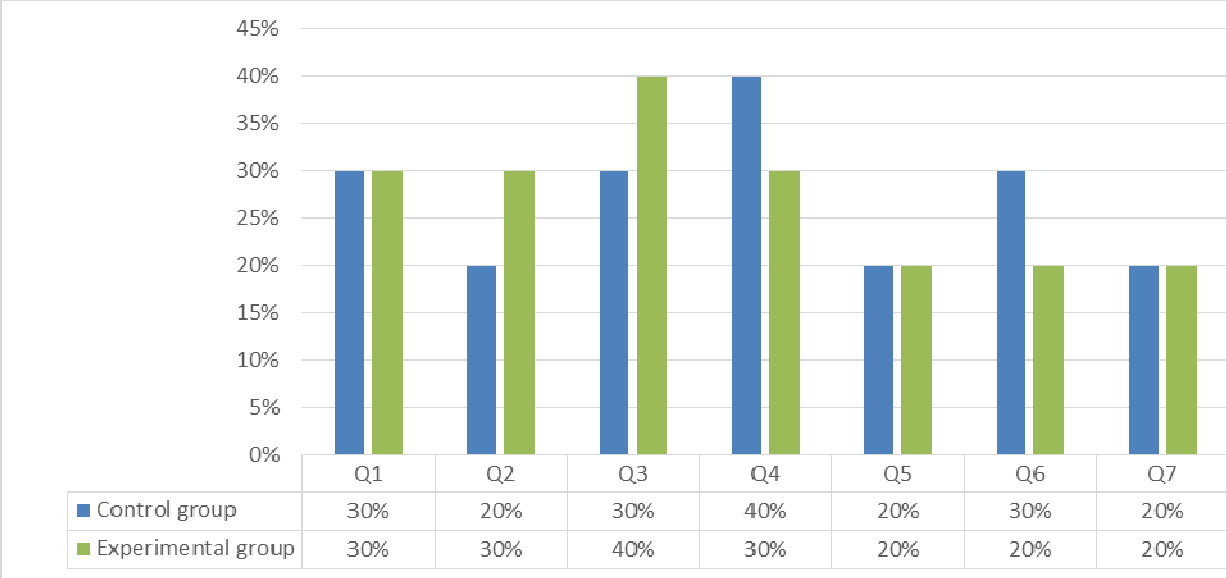
4.7. Analysis and Interpretation of the Experiment Results

This section aims at interpreting the findings of the experiment conducted with the control and experimental group in order to answer the fourth research question that investigates the way the project work pedagogy could develop learners' critical thinking skills.

To answer that question, it was necessary to use pre-post tests to help the teacher-researcher compare the performance of learners and their extent ability in performing higher

thinking levels. This investigation used two analysis sets, including the critical thinking pre-post test, as well as the observation of learners' behaviour towards project work during the treatment phase.

An analysis of the pre-post tests was conducted to determine the number of participants who could answer the seven higher-order level questions of the test before and after the treatment. This analysis aims at seeing whether there was an improvement at the level of the number of learners who could answer each question. The more the number of answered questions increases, the more learners' higher-order thinking skill is reflected. The questions used in those tests are based on Bloom's higher levels of questionning on which learners'analysis, interpretation, inference, explanation, and problem-solving skills are being measured. All in all, the analysis is applied to obtain findings from the research data to measure learners' ability to respond to the questions belonging to the higher level types. Additionally, the analysis investigates learners' improvement in dealing with higher-level questions before and after the treatment. The graph below presents the results of the number of questions answered in the pre-test for both the control and experimental groups:

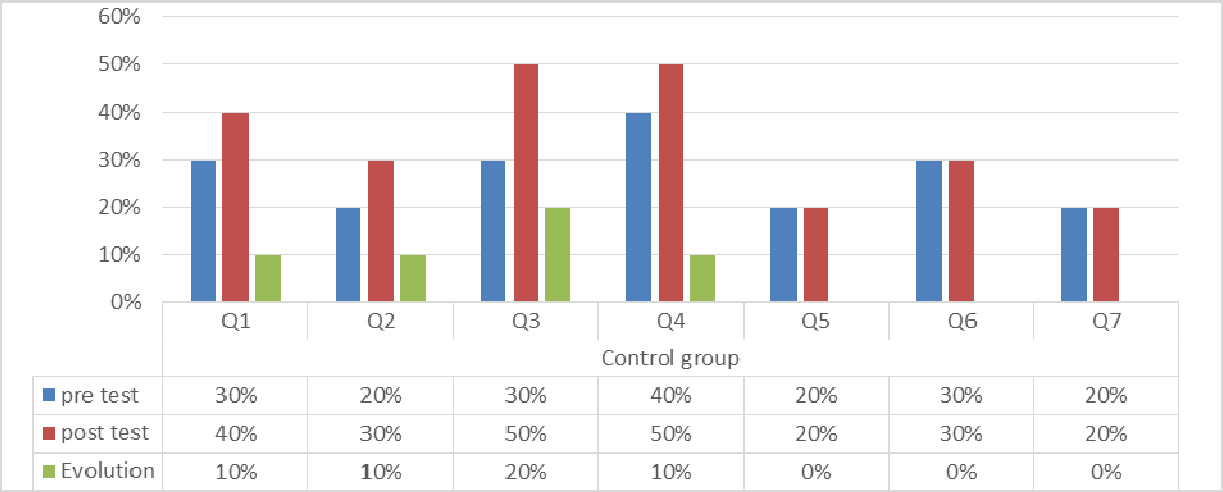


	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Control group	30%	20%	30%	40%	20%	30%	20%
Experimental group	30%	30%	40%	30%	20%	20%	20%

Figure: 4.25: Pre-Test for Contol and Experimental Groups

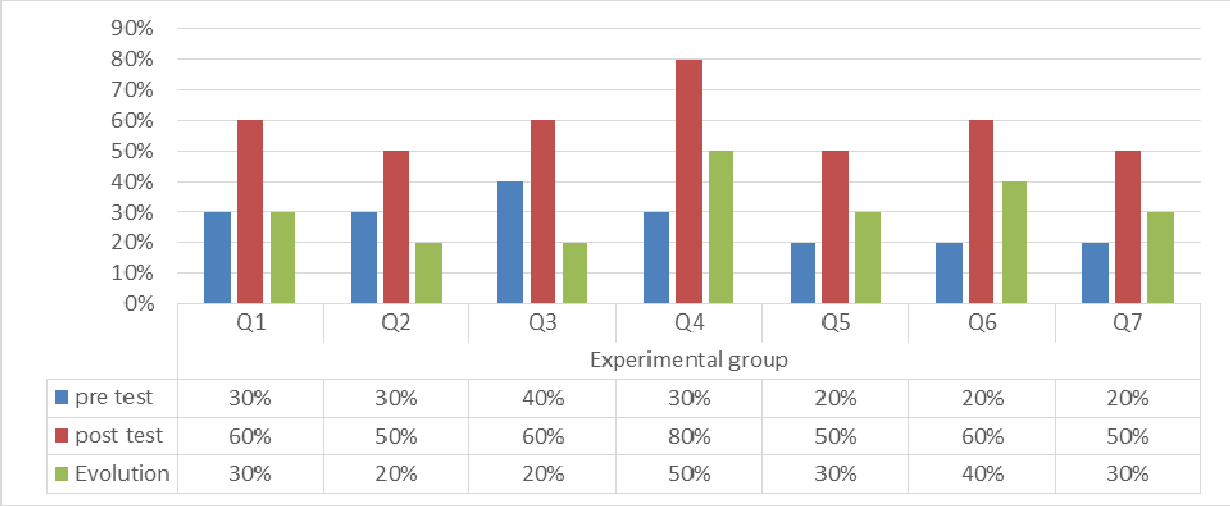
The results in the graph above show that there is no significant difference between the two groups in the pre-test before the treatment. To examine the impact of the project pedagogy in the development of learners' higher-order thinking skills, a post-test was employed to see the difference between the groups in terms of higher-thinking level improvement. The researcher gave back the same answer sheets of the pre-test to each learner in both groups and asked them to answer the questions they had not answered during the pre-test phase. The graphs below

demonstrate the level of improvement in the number of answered questions of the pre-post tests for both groups separately:



	Q1	Q2	Q3	Q4	Q5	Q6	Q7
pre test	30%	20%	30%	40%	20%	30%	20%
post test	40%	30%	50%	50%	20%	30%	20%
Evolution	10%	10%	20%	10%	0%	0%	0%

Figure: 4.26: Pre-Post Tests Difference and Evolution (Control Group)



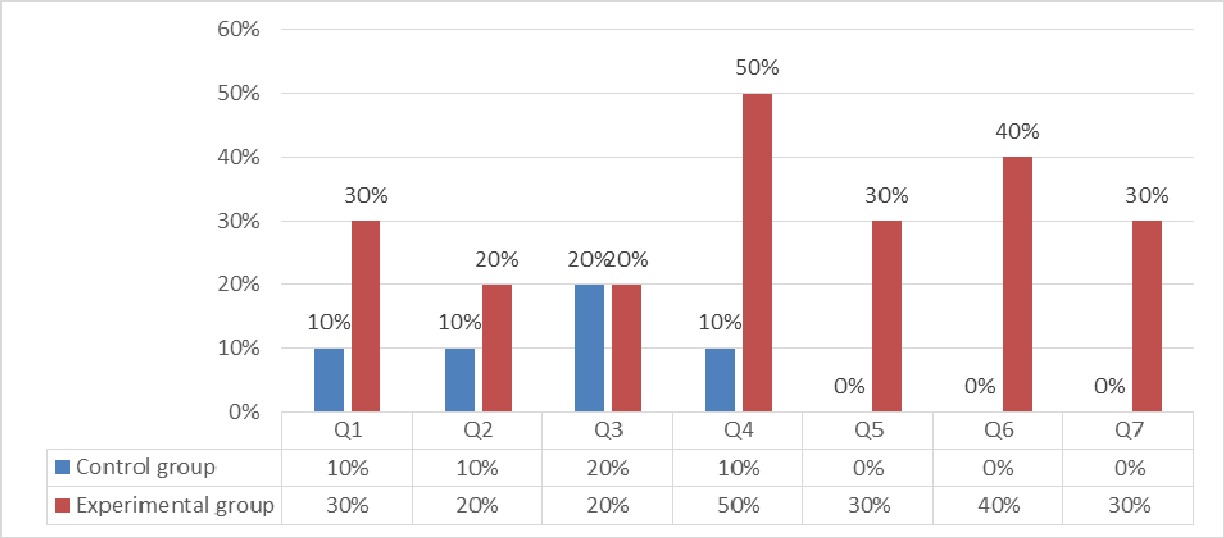
	Q1	Q2	Q3	Q4	Q5	Q6	Q7
pre test	30%	30%	40%	30%	20%	20%	20%
post test	60%	50%	60%	80%	50%	60%	50%
Evolution	30%	20%	20%	50%	30%	40%	30%

Figure: 4.27: Pre-Post Tests Difference and Evolution(Experimental Group)

The data on the graphs above (4.26 and 4.27) demonstrate that the control group shows no improvement concerning the last three questions, which are considered as complex questions that need higher-order thinking skills. However, the questions in which they have shown a slight improvement are probably due to the knowledge acquired during the unit teaching phase i.e. the treatment phase.

Manifestly the findings in both graphs are remarkably different. The experimental group shows a significant improvement in answering more higher-order questions after the treatment. Such a result implies that there was a positive impact of the project-based methodology used during the teaching of the experimental group. This success is also due to

the fact that those learners were required to practise multiple tasks related to the project assigned and to do more research with the guidance of the teacher-researcher.



	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Control group	10%	10%	20%	10%	0%	0%	0%
Experimental group	30%	20%	20%	50%	30%	40%	30%

Figure: 4.28: T-Test of the Improvement in Control and Experimental Groups

Additionally, the results shown in Figure 4.28 above reveal that the percentages of the experimental group symbolize a positive change. Most of the learners in the experimental group succeeded in answering more questions after conducting the steps of the project for six weeks. However, the control group - who was taught with the common teaching approach based on traditional methods and teacher-centredness presently used by teachers - showed no significant improvement between the pre-test and post-test, except in the first four questions. As is it noticeable in the graph, the percentages of the experimental group significantly improved with an average percentage of 50% in the fourth question in which learners were supposed to use analysis and inference skills. Moreover, those learners demonstrated an improvement of 30% in the fifth and seventh questions. It is noteworthy that those questions belong to the evaluation level in Bloom's Taxonomy. Also, there is an improvement of 20% for question two and three, which require learners to analyse, synthesize the issue and evaluate their answers by giving evidence. Besides, question six shows an improvement of 40%. That improvement is due to the stages, tasks and activities used by the teacher-researcher during the experimental teaching period.

During the experimental teaching process and in the second week, learners were asked to do an assignment on page 151 of the textbook (see Appendix I). The task is about making a short ID card of a historic celebrity who contributed to astronomy. Surprisingly, the learners decided to write about *Galileo Galilei* probably because it was the topic of the pre-test given to them and they wanted to know more about Galileo's contributions, or they made the connection

with what they learned in physics. That assignment aimed to prepare learners to do research and prepare them for the coming project workshops session.

Through the project work implementation, the learners in the experimental group showed a positive behaviour, especially during the project workshops sessions. In the realization phase, learners started to collect data and select the appropriate language, correct, analyse and organize materials for the end-product. Learners showed the ability to recall, remember and evoke information from their long-term memory. In other words, they tried to evoke what they had previously learnt. Learners were preparing for a gallery walk about the solar system and how astronomy benefits society and humankind. During the project workshop session, learners discussed a picture of the solar system (see Appendix J) from which they tried to produce some coherent sentences to be later used in the presentation. The learners analysed and interpreted the concepts introduced in the image to write appropriate and meaningful sentences. They used some strategies while writing the sentences, such as looking up for some words in the dictionary to check the spelling and using the textbook to collect some ideas. In other words, they had to think about which words were correct or appropriate for the context, analyse the image, organize ideas, synthesize them and finally create meaningful sentences. That task allowed learners to improve not only their vocabulary but also their writing skill and thus their thinking ability.

The following are sample statements formulated by the learners: "Earth is the third planet from the sun."; "It takes 365 days to rotate around Sun". In the first sentence, learners analysed the image, and from that analysis they formulated a sentence; whereas, in the second sentence learners applied their previous knowledge, i.e. the scientific truth that it takes 365 days for the earth to rotate around the sun. Besides, those examples showed that learners constructed sentences in which they used the vocabulary learnt throughout unit three of the textbook, such as the word "rotate" for example. Those findings imply that learners practised their ability to remember the words and their meanings, apply them and create new texts.

This process involves and encourages learners to work collaboratively, share ideas and check their written production together (peer-assessment). Within this project, learners had the opportunity to negotiate meaning, work collaboratively and use the target language while interacting. Accordingly, the development of the project allowed learners to improve their writing skill. Learners also seemed motivated and interested to create their own product.

Based on these results, it is possible to conclude that the process of the project encourages learners to use their critical thinking skills since it stimulates their positive

engagement and motivation towards the target topic of the project. Additionally, the teacher plays a vital role in guiding and motivating learners through planning critical, reflective and analytical activities, tasks and questions that trigger learners' interest instead of focusing on lecturing about vocabulary and grammar structures. Subsequently, on the one hand, the role of the teacher shifts from an authoritative agent to a coordinator, guide and facilitator which enables learners to become co-workers and team-builders working cooperatively, negotiating and reflecting on their learning. On the other hand, learners become more aware that the project is not only a final product but also a process in which they need to follow different strategies to achieve the goals set successfully. As a matter of fact, learners apply what they have previously learnt during the project preparation process: grammar structures, vocabulary, skills and strategies. Indeed, through the realization of projects, many accomplished objectives linked to skills are observed. Hence, at the presentation phase of the end-product, learners enhance their evaluation skill thanks to the feedback of the group members, the other peers and the teacher.

4.8. Discussion and Interpretation of the Main Results

This section encompasses the interpretation of the main results of the data collected from the content analysis of the materials, questionnaires, classrooms observation and the pre-post-tests discussed previously throughout this chapter. The data gathered was applied to answer the fourth previously mentioned research questions of this study.

Generally speaking, the project work is given prominence in both the syllabus in which the units end with the realization of projects, and the accompanying document in which the designers state that the project pedagogy is of a great help; it promotes interdisciplinarity and collaboration and aims to make knowledge functional which will eventually motivate the learner's interest (MNE, p.4). That implies that the syllabus designers focused on not only promoting higher-order thinking skills but also enhancing the 21st-century skills through the project pedagogy. The results show that the project approach is included in the *New Prospects* SE3 textbook where the *Project Outcome* rubric is mentioned at the beginning of the units and detailed at the end of each unit; besides, “the project designing procedure runs in parallel with the unfolding of the unit” (MNE, 2005b, p18). In addition, within the unit phases the project work methodology is mentioned five times:

- *Brainstorming* gets the learners to brainstorm the topic, agree on the tasks, the format and content of the final product.

- The *Fact-Finding* stage contains activities to be done outside the classroom. It also deals with data collection, equipment to be used and the places they may visit.
- *Organizing* is the stage where learners are put into groups.
- *Writing up* is a stage which includes writing, editing and negotiating. During this stage, the teacher monitors and gives advice.
- *Assessing* is the last stage. Here the group spokesman reports the findings, and then the work is assessed primarily by peers and when necessary by the teacher.

The steps above match the stages of the project work. The findings of this analysis reveal that the designers recommend the *structured project*. This kind of project is teacher-centred since the teacher determines, specifies and organizes the topic, the methodology and oral performance. Furthermore, s/he provides all the instructions needed to complete the project. The analysis of the project section in the textbook units reveals that the six projects analysed fall under the structured projects.

In fact, project work promotes both cooperative work and autonomy in which the learner is an individual and a member in a group (Fried-Booth, 2006). Though learners should be responsible for their learning process, they need guidance which, in this case, is a crucial ingredient. Teachers, eventually, should proportionally guide learners in all the phases of the project process and thus follow the guidelines included in the textbook.

Some units of the textbook do not contain any instructions on the materials and methodology of the project realization and the project topics are not imposed. Therefore, learners have the freedom to choose the topic they find interesting to them (Alan & Stoller, 2005), on the condition that it (topic) relates to the themes proposed by the syllabus designers. The fact that all the projects suggested by the designers are supposed to be constructed in a written form reveals that the designers' aim is to prepare the learners for the baccalaureate exam which is totally based on the written production.

The analysis of the SE3 textbook shows, on the one hand, that the textbook designers put more emphasis on research projects and they also focused only one type of projects: the survey project. On the other hand, what is ignored in *New Prospects* are correspondence and encounter projects. The latter, in fact, encourage learners' oral production in English. In this case, textbook designers should have given much importance to those two categories because oral interaction needs to be predominant in the language classroom, most notably during the project work process. Even the pair and group work activities included in the textbook are not

interactive since they focus a lot on the writing skill and this is, as mentioned previously, due to the nature of the baccalaureate exam which is totally in a written form.

Although project work is highly recommended by the syllabus and the textbook designers, it remains peripheral in the classroom practices since it is not well planned and teachers are not well trained to heighten such a process. Additionally, the analysis reveals that the project work is a step-by-step process which builds dispositions towards life-long learning which is itself enhanced through autonomous learning and learner-peer-content interactions. The focus, in this case, is not on the final product itself but rather on the experience lived by the learner throughout the project preparation process.

The activities suggested in each unit help learners acquire language elements and other skills such as the cognitive, communicative and writing skills which direct them to the end-product. All in all, teachers are urged to apply the concept of the Zone of Proximal Development (ZPD) to help learners become more competent gradually. Teachers have the responsibility to identify what learners already know and provide them with something new through well-planned activities. Thanks to those activities, learners can relate the new data to their previous knowledge to understand the new concepts. The teachers' role, in this case, is to guide them systematically throughout the process.

Last but not least, it is worth noting that authenticity is included in the textbook. Almost all the projects suggested in *New Prospects* deal with real life issues. However, despite the few deficiencies noticed within the textbook, *New Prospects* stands as an essential tool and plays a significant role in ELT. However, teachers should neither take it as a focal point nor use it blindly in their teaching.

In order to answer the second research question of the study which investigates the extent to which English teachers' attitudes and classroom practices conduct to the development of critical thinking, an attitudinal questionnaire was administered to seventy one (71) teachers, and thirty (30) classroom observation sessions of teachers were conducted. The results obtained from the teachers' questionnaire showed that the majority of teachers are reasonably knowledgeable about teaching theories and methods, yet they lack the 'know-how' skill which is mainly due to the lack of professional training: workshops, seminars, mentors' guidance and peer-to-peer classroom observation sessions. Although the project work is integrated into the syllabus, the accompanying document and the textbook, the majority of teachers admitted that they do not assign projects for the third-year classes. Most of the respondents agreed on the

importance of projects in fostering and developing learners' critical thinking skills, but they preferred to skip it because of time constraints related to the programme length and the baccalaureate exam in addition to the lack of professional training. The results also showed that teachers were aware of their roles in the development of learners' critical thinking. The majority of them affirmed that their role is vital and that guidance stands as an essential ingredient in the learning process. However, almost all of them admitted that they did not know how to enhance critical thinking skills. The findings of the teachers' questionnaires also revealed that various obstacles might have impeded the development of learners' critical thinking skills and the implementation of PBL in English classes. The most deduced obstacles are the lack of experience of teachers, crowded classes and time constraints vis-à vis the baccalaureate exam for which most of the informants stated that they should finish the programme by the time period recommended by the MNE. Though most of the teachers (70%) claimed that they incorporated Bloom's higher-order thinking skills in their teaching, only 37% of them applied the divergent questioning which is the type of questions that lead learners towards deep thinking.

The above-mentioned results are in line with the classroom observation findings in which a great majority of teachers focused on convergent questions that rely on recalling information; while a minority used questions that encourage critical thinking skills. According to the classroom observation findings, teachers rarely ask learners to judge reasonableness, reliability, credibility or validity; instead, most of the activities embed an intensive grammar-based style. In addition, insubstantial and restricted instruction does not prepare individuals for any problem-solving challenges that learners may face in everyday life, but collaborative work and pair/group work strategies do. Unfortunately, they were quite absent in the visited classrooms, which limited interactions between learners. The results also show that the learning process was not thought-provoking and the lack of active learning strategies hinders the boosting of the higher-order thinking skills. Additionally, the technological tools or mind tools such as computers, projectors were not used in the classrooms settings. That is also one of the obstacles that may limit the use of active learning methodology. The classrooms observation findings also showed that learner-centredness was not really encouraged since teachers were constantly omnipresent in the teaching/learning process. The majority of the observed teachers were lecturing and explaining everything, thus most of the learners were relatively silent, passive and less engaged. Those results confirm that classroom practices are not majorly conducive to the development of learners' autonomy and critical thinking skills.

Besides, the results obtained from the learners' questionnaire revealed that the majority of learners were interested but not motivated to do projects. 93% of them confirmed that the role of the teacher was important in motivating them. It is important to note that motivation helps to stimulate, direct and nurture positive behaviour over a long period of time. Motivation is also an important factor for the implementation of the PBL; however, negative attitudes and lack of motivation can stand as a barrier to the development of learners' skills in a language classroom additionally teachers' practices and behaviours in the classroom play a vital role in motivating learners to do projects collaboratively and nurture their competences and skills.

The results prevailed from the pre-test measures indicated that both the control and experimental groups performances were similar before the treatment. However, the post-test results showed a significant difference between the two groups in terms of the ability to answer higher-level thinking questions. The results also showed that the project work as a process had a positive effect on the experimental group, in the sense that it developed not only their cognitive abilities but also their affective and psychomotor abilities. Most of the learners in the experimental group were engaged, very active and willing to finish and present their project. Those features are evidence of the development of the learners' higher-order thinking skills and motivation.

4.9. Conclusion

During this exploratory research, valuable insights were gained in accordance with the research questions and objectives stated. The findings obtained from the quantitative and qualitative analysis allowed to confirm the hypotheses set in this study and draw evidence concerning the impediments of the integration of critical thinking skills as well as the present classroom practices which generally limit the improvement of those skills. Thanks to those findings, the remedial strategies to enhance critical thinking skills in EFL teaching settings become apparent and could be used as key elements to overcome the discussed issue.

This study has cast new light on the causes of low achievements in learners' cognitive abilities taking into account all the influential factors that obstruct the enhancement of critical thinking skills, namely the classroom practices and teachers' assumptions that hinder the implementation of the project work methodology, a vital tool to enhance the skills learners need to be critical thinkers.

Hence, the coming chapter will attempt to provide some suggestions, recommendations and implications that can help teachers rethink their classroom practices and direct their

teaching towards the enhancement of learners' skills that lead to critical thinking using active learning strategies and embracing the project-based methodology properly.

Chapter Five

Recommendations and Suggestions for Promoting Critical Thinking Skills

Chapter Five: Recommendations, Suggestions and Implications for Promoting Critical Thinking Skills

Chapter Five: Recommendations, Suggestions and Implications for Promoting Critical Thinking Skills

5.1. Introduction

Integrating critical thinking skills in learning is vital to prepare learners for problem-solving situations either in the classroom or outside the learning setting. However, in the Algerian secondary education, critical thinking skills need to be developed. It is noticeable that teachers need to be well trained in how to foster CT skills in their classes. In fact, it is through the teacher' practical and researched based approaches, active learning strategies and activities that learners can develop their higher-order thinking skills. Though it is a challenging task to be achieved in the Algerian educational context, it is at least possible for teachers to adopt certain behaviours in the classroom without interfering with the MNE recommendations concerning the baccalaureate exam.

This chapter strives to shed light on some necessary pedagogical, methodological and practical recommendations and suggestions to foster CT skills. It suggests some directions that can be helpful not only to EFL teachers and learners but also to curriculum and syllabus designers to overcome the present difficulties that hinder the enhancement of critical thinking skills among secondary school learners, and eventually other learners also.

5.2. Pedagogical Recommendations

The following subsection suggests some pedagogical recommendations so to help teachers and trainees in developing their abilities to teach critical thinking skills in English language class.

5.2.1. Preparation for Critical Thinking Pedagogy

Bridging the gap between theory and practice needs an important step forward by teachers and educators. A need for reflective thinking on actions and classroom practices is seen as an essential step towards professional development. According to Brookfield (2017), teachers can self-assess their teaching through four fundamental sources, namely "students' eyes, colleagues' perceptions, personal experience, and theory and research." Therefore, many educationalists and professionals have adopted for reflective teaching to improve certain teaching practices. Reflective teaching implies critical thinking about previous and present experiences occurring in classroom settings. In connection with the preparation for critical thinking pedagogy, teachers and researchers should conduct their works on the rationale of reflective teaching to adopt relevant teaching practices and techniques to help learners develop their critical thinking skills.

5.2.2. Preparing Teachers for Critical Thinking Instruction

Effective teaching leads to effective learning, and yet teachers should have a long-term professional development over the years and not only for a few months. That helps them work first on their own critical thinking development. Thus, it is clear that training teachers for an extended period of time brings a way to integrate critical thinking effectively into instruction. This could be realisable through long-term follow-up workshops. The researcher suggests, first of all, to start with some workshops just to present the fundamental principles of critical thinking which will lead teachers to the engagement in self-monitoring and self-evaluation, in other words putting these basic principles into practice. Such actions will help them gradually enhance their critical thinking skills. That goes in line with Paul & Elder's (2012) point of view in which they state that:

> Critical thinking is not an isolated goal unrelated to other important goals in education. Rather, it is a seminal goal which, done well, simultaneously facilitates a rainbow of other... Recent research suggests that critical thinking is not typically an intrinsic part of instruction at any level. Students come without training in it, while faculty tend to take it for granted as an automatic by-product of their teaching. Nevertheless, without critical thinking systematically designed into instruction, learning is transitory and superficial.

This study shows that fostering critical thinking skills in the classroom is a relatively complex process predominantly because not all learners have the opportunity to practise and develop this skill outside the classroom. Due to the teachers' classroom practices, many learners do not exploit their analysis, synthesis and evaluation cognitive levels. Therefore, in order for teachers and learners to be critical thinkers, policymakers should initiate productive and beneficial practical training programmes on how to foster learners' critical thinking. The researcher suggests that this preparatory training should start in the pre-service stage and to be carried on in the in-service period. In those training programmes the focus should be put on the roles teachers need to take on in the classroom. They should be also provided with effective applicable instructional practices to develop their own thinking skills and eventually their performance.

5.2.2.1. Critical Thinking in Teacher's Training Programmes

Developing critical thinking highlights the importance of the focus to be put on learners who seek to consciously examine and address an array of challenges around them, including their learning process. This study revealed that in order for learners to be critical thinkers,

educators need to train themselves to be critical thinkers. In this context, Paul Hager and Michael Kaye (1992) affirm that:

> One thing is clear. If critical thinking can be "taught" (and this, we know, is a point of contention and debate), it is imperative that those who "teach" others to be critical thinkers are themselves well developed in critical thinking (p.30).

It also stressed that the lack of awareness of the essential instruction of thinking does not improve or evaluate the conceptual performance of the learners. Variables that assess the effectiveness of the implementation of the thinking skills include training teachers; however, training programmes are not sufficient to improve learners' thinking skills, if the application in the learning setting does not meet the required standards. As Kennedy et al. (1991) claim:

> The remaining task, and it is a large one, is the refinement of our understanding of what aspects of thinking can be learned, by whom, under what conditions, in what settings, and using what methods" (p.15)

5.2.2.2. Teacher Professional Development

Improving teacher professional development programmes will probably lead to the development of learners' performance in different skills, principally the 'four Cs': collaboration, communication, creativity and critical thinking. However, teaching cognitive skills to teachers is a crucial step to take before training them to apply those skills in the learning setting. For this aspect, Paul (1988) suggests that it is necessary to incorporate critical thinking skills throughout all facets of teacher training and prepare teachers as models for successful thinking strategies.

5.2.2.3. Sample Course Design for Teacher Professional Development

To assist teachers in developing the 21st-century skills to support the critical thinking-based classrooms, the researcher suggests the following course design. The aim of the latter is to supply insight for the instructional designers, inspectors and stakeholders to provide an in-depth understanding of the strategies and types of tasks to be presented during the pre and in-service training. Similar courses could be designed and included in an easy-to-follow guide which the MNE could print in a form of a booklet and hand to teachers during training. The following sample training course design is just an attempt to provide guidance to teachers and instructors on how to plan those training courses and how the materials are selected, adapted and presented to teachers.

- *Task 1. Flip Chart to Share*

  Reflect for a few minutes on what 21st Century Learning means to you. Share your thoughts with a colleague before a general table discussion.

- *Task 2. Quiz: Are you a 21st Century Teacher?*[1]

  Write "Yes" or "No" in the boxes on the left.

Yes/No	Language Classroom Practice
	1. I teach learners about language (grammar).
	2. I provide learners with personalised, real-world tasks.
	3. I seek opportunities for learners to use the language beyond the classroom.
	4. I put the focus on isolated skills (listening, speaking, reading, and writing).
	5. I am the one who possesses the criteria for grading.
	6. The work is "turned in" for me.
	7. My learners create to "share and publish" to audiences more than just to me.
	8. I design lessons focusing on the end goal.
	9. My classes are teacher-centred.
	10. I differentiate instruction to meet individual needs.
	11. My learners learn to use the language.
	12. I cover (deal with) the textbook.
	13. I give the same instruction to all learners.
	14. I use thematic units and authentic resources.
	15. I limit language learning to the classroom.
	16. I use assessment to find out what learners can do in the target language.
	17. I use synthetic learning situations from the textbook.
	18. I put emphasis on the learner as a "doer" and "creator".
	19. My learners know and understand criteria on how they will be assessed by reviewing the task rubric.
	20. I use the textbook as the curriculum.
	21. My class is learner-centred, and I play the role of a facilitator/collaborator.
	22. I play the role of a presenter/lecturer.
	23. In my class, the focus is put on the three modes: interpersonal, interpretive, and presentational.
	24. I use testing to find out what learners do not know.

Table 5.1. Teachers' Classroom Practices

[1] Adapted from : *21st Century Skills Map*, https://www.actfl.org/resources/resources-2020

- *Task 3. Think It Over*

Let us get thinking; work with your table group to solve the following puzzle:

Habib, Hala, Yacine and Hafida are out walking. They come to an unstable old wooden bridge. They come to an old wooden bridge which is unstable. The bridge is fragile and can carry only two persons at once time. Since they are in a hurry and the light is fading, they must cross in as little time as possible and at each crossing they must hold a torch (flashlight).

They only have one torch, and it cannot be thrown. Because of their different fitness levels and some minor injuries, they will all cross at different speeds. Habib can cross in 1 minute, Hala in 2 minutes, Yacine in 5 minutes and Hafida in 10 minutes.

Habib thinks for a moment and declares that the crossing can be completed in 17 minutes. There is no trick. How is this done? [2]

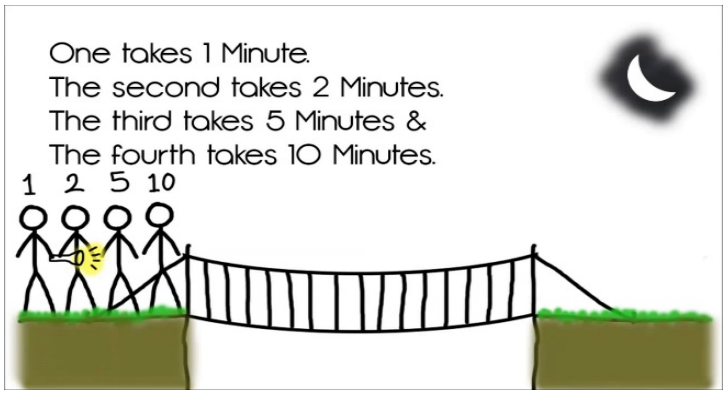


Figure 5.1: Crossing a Bridge Riddle

A) Use the space below to consider the options and reach your solution.

.....

.....

B) Make a list of the skills you have used to solve the problem.

.....

.....

- *Task 4. Give One Get One*
- Watch the video[3], pick out the 21st-century skills mentioned and compare them with your answer in the previous activity.

[2] Adapted from : Crossing a Bridge Riddle, https://puzzlefry.com/puzzles/crossing-a-bridge-riddle/

[3] https://www.youtube.com/watch?v=ghx0vd1oEzM&t=27s

- *Task 5. Think Pair Share (TPS)*

  What does each skill mean to you? Write short definitions.

- *Task 6. A. Gallery Walk: (Posters)*

  A. What do you expect learners to be able to do after acquiring each of those skills?

  B. Classify each of the following learning expectations under the suitable skill.

Skills
Critical Thinking - - -
Communication - - -
Collaboration - - -
Creativity - - -

Learning Expectations: The 21st-century learner will…
1. assume shared responsibility.
2. listen actively.
3. know the personal creative process.
4. generate ideas.
5. assist others in their roles.
6. contribute ideas.
7. ask clarifying questions.
8. analyse complex systems.
9. express ideas.
10. demonstrate originality.
11. evaluate evidence.
12. keep an open mind.
13. use a variety of techniques.
14. select appropriate media.
15. maximise creative efforts.
16. use multiple forms of media.
17. learn from mistakes.
18. reflect on learning.
19. transfer problem-solving skills.
20. tolerate different viewpoints.

Table. 5.2: The 21st-Century Learner's Skills

- *Task 7. Bloom's Taxonomy*

A) Put each of the following cognitive processes in its corresponding level: A, B, C, D, E or F.

Evaluating – Remembering – Creating – Analysing – Understanding – Applying

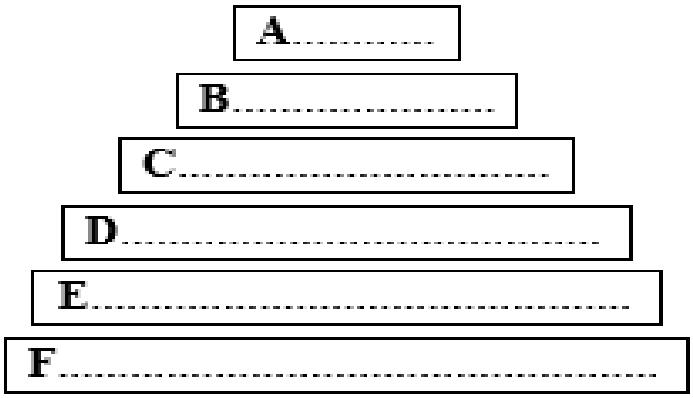


Figure 5.2: Bloom's Taxonomy Pyramid

B) (TPS) Choose the verbs that correspond to the cognitive level given to you.

Levels	Illustrative Verbs
Creating	
Evaluating	
Analysing	
Applying	
Understanding	
Remembering	

SLIPS OF PAPERS

Figure 5.3: TPS – Bloom's Taxonomy Related Verbs

- *Task 8. How Creative Are You? (Quiz)*[4]

A) For each statement, tick the column that best describes you. Answer questions according to what you are actually (rather than how you think you should be), and do not bothered about the questions that seem to score in the 'wrong direction'.

		Not at All	**Rarely**	**Sometimes**	**Often**	**Very Often**
1	Creative people should specialise in bringing up with lots of ideas. Other people should then implement these.					
2	If I have a problem, I allow myself to back off active problem solving, and I create some mental distance between the issue and myself.					
3	When I'm coming up with ideas, I find myself using phrases like "we can't" or "we don't."					
4	I'm busy. As soon as I have a good idea, I move forward with implementation.					
5	I gather information from a wide variety of sources to stay current with what's happening in my field of work.					
6	I see problems, complaints, and bottlenecks as opportunities rather than as issues.					
7	When solving a problem, I try to rethink my current understanding of an issue to develop a more in-depth insight into it.					
8	I often ignore good ideas because I do not have the resources to implement them					
9	I find problems and issues distracting. They cause me to lose focus on my real work.					
10	I am confident that I can develop creative ideas to solve problems, and I'm motivated to implement solutions.					
11	I take time to investigate how things are working, even when there are no current problems.					
12	I always look for the causes of problems, so that I can understand what is really going on.					
13	I look for things in my environment to inspire me to find new interpretations of problems.					
14	I focus on issues that are important right now, preferring to worry about future problems as they arise.					
15	When gathering information about an issue, I explore solutions that have worked elsewhere in the past.					
16	When I generate ideas, I evaluate them, and I quickly discard ideas that I do not like.					

Table. 5.3: How Creative You Are Quiz

[4] Retrieved March 20th, 2020 from : https://www.mindtools.com/pages/article/creativity-quiz.htm

B) Overlay your answers from 1 – 16 on the following score grid and total the scores.

	Not at All	Rarely	Sometimes	Often	Very Often		Not at All	Rarely	Sometimes	Often	Very Often
1	5	4	3	2	1	**9**	5	4	3	2	1
2	1	2	3	4	5	**10**	1	2	3	4	5
3	5	4	3	2	1	**11**	1	2	3	4	5
4	5	4	3	2	1	**12**	1	2	3	4	5
5	1	2	3	4	5	**13**	1	2	3	4	5
6	1	2	3	4	5	**14**	5	4	3	2	1
7	1	2	3	4	5	**15**	1	2	3	4	5
8	5	4	3	2	1	**16**	5	4	3	2	1
My total score _____											

Table. 5.4: Quiz Score Grid

After getting the score, the following comments show how creative an individual is:

16-36 points:
You're unsure of your creative talent. Maybe you haven't been given opportunities to be creative, or maybe you're convinced that you're simply not a creative person. Either way, look for opportunities to improve how you do things, even if you don't have any current problems. Use the discussion and resources below to be more creative – you'll be surprised by how creative you can be if you give yourself a chance!

37-58 points:
Your creativity is a "work in progress." You've had some successes, so now it's time to let loose and stretch yourself. Share your ideas and perspectives with others, and ask them how they view problems. Adopt a collaborative approach to problem finding, and work actively with others to create and innovate. The tools and resources below will help you get to the next level of creativity.

59-80 points:
Creativity is one of your strengths, and innovative and creative minds are highly sought after. So don't hide your ability! Look for ways to share your creativity process with others. Engage colleagues and teammates in creative pursuits, and promote creativity in your team and organization. And remember that you can always be more creative – so use the tools and discussion below to fulfill your creative potential![5]

[5] Retrieved on March 20th, 2020 from : https://www.mindtools.com/pages/article/creativity-quiz.htm

C) What have you learnt about yourself as a result of completing this activity?

.....

.....

D) What can you do differently as a result of this reflection?

.....

.....

- *Task 9. Marshmallow Challenge*

The Marshmallow challenge is a game of agility popularized by Tom Wujec, a Canadian pioneer of team building and visual strategy. To highlight its importance he states:

> I believe the marshmallow challenge is among the fastest and most powerful technique for improving a team's capacity to generate fresh ideas, build rapport and incorporate prototyping - all of which lie at the heart of effective innovation ([6]).

The task is simple. In about eighteen minutes, teams are required to build the tallest free-standing structure out of 20 sticks of spaghetti, one metre of tape, one metre of string, and one marshmallow. The winners are those who construct the tallest structure.

A) What was most challenging about this activity?

.....

.....

B) What was the easiest part of this activity?

.....

.....

[6] Retrieved on March 20th, 2020 from: https://thewestsidegazette.com/100-black-men-of-greater-fort-lauderdales-leadership-academy-tackles-marshmallow-challenge/

- *Task 10. Boosting Your Creative Ability*

In his well-respected book, *Creativity: Flow and the Psychology of Discovery and Invention*, Mihaly Csikszentmihalyi (1997, p.413) says that an effective creative process usually consists of five steps. These are preparation, incubation, insight, evaluation and elaboration.

Match the steps and their definitions.

Steps		Definitions	
1	Preparation	A	Allowing ideas to turn around in your mind without thinking about them consciously.
2	Incubation	B	Creating a plan to implement the solution, and following through
3	Insight	C	Becoming immersed in problems and issues that are interesting and that arouse curiosity
4	Evaluation	D	Taking time to make sure that the insight provides sufficient value to outweigh the various costs involved in the implementation
5	Elaboration	E	Experiencing the moment when the problem makes sense, and you understand the fundamental issue.

Table 5.5: Creative Process Steps

(Key: 1-C, 2-A, 3-E, 4-D, 5-B)

At the end of the training, teachers could be provided with a sample 21st-century skills planning template and a KWL chart (Appendices Q-R).

5.2.3. Teachers' Roles in Fostering Learners' Critical Thinking

The role of the teacher is essential in the classroom. Being a successful teacher needs good classroom management, and thus every teacher should know which role to take and when it needs to be taken. Creating a learner-centred classroom is one of the significant features of a classroom. To help learners foster the 21st century skills, a teacher can undertake mutiple roles in various situations. The following section will focus on the most important one that could help fostering critical thinking.

5.2.3.1. Facilitator

Being a facilitator means helping and assisting learners in achieving a goal through simplifying what is problematic. The teacher should not be the controller when assigning activities and tasks. That could be possible if the lessons are planned in such a way to reduce

the teacher's predominance. It is preferable to give learners opportunities to be creative and innovative through problem-solving tasks. Also, the teacher should involve learners and keep them motivated by letting them take an active role in class. In other words, learners should work in a learner-centred environment. That helps learners to be autonomous and successful individuals in the future. Besides, it is advisable to provide learners with tasks in which they can shape and see the outcome of their efforts, and therefore their motivation could be boosted. It is worth noting that successful teaching relies on teachers who are facilitators, not knowledge providers.

5.2.3.2. Motivator

A teacher as a motivator plays a significant role in enhancing and encouraging the involvement and performance of learners. Such enhancement can be possible if learners' profiles and interests are identified and taken into account while planning lessons and during classroom practice. Harackiewicz J.M. et al. (2016) define the concept 'interest' as "a powerful motivational process that energizes learning, guides academic and career trajectories, and is essential to academic success" (p.220). The teacher-learner relationship is to be strengthened through a variety of measures. In this vein, several researchers and stakeholders recommend the implementation of the following behaviours in the classroom:

- Provide mutual interaction and communication: learner-learner, learner-teacher and teacher-learner.
- Be available and prove you are caring for your learners.
- Enable learners' autonomy by providing the opportunity to assume responsibility.
- Be a lovely and devoted human.
- Set high but reasonable standards.
- Set a climate of respect and fairness.

To promote motivation, teachers can tailor their instruction to the learners' interests and backgrounds and show them the social or professional significance and importance of the instructed activities and their relation to the real world outside the classroom. After being instructed that kind of activities, learners can not only identify their usefulness but also feel the need to apply the related acquired knowledge and skills to solve real-life problems. As a result, learners' willingness and interest as well as their involvement and commitment in the fulfilment of the assigned tasks will grow considerably. Moreover, teachers should know their learners well and be aware of the fact that their past social and academic experiences have an impact on

their present achievements and that will help them create a new picture of their present. Therefore, it should be beneficial to provide learners with appropriate activities that have a significant impact on their experiences, abilities and interests. Additionally, a number of other classroom practices can enhance learners' motivation like teaching by discovery, praising instead of providing negative comments, encouraging collaborative work, allowing the choice of project topics and assessing them in a variety of ways to avoid bad results and frustration.

5.2.3.3. Coach

Learners are "trainees", and coaching them implies putting them in circumstances in which they have complete and meaningful tasks to perform. There must be a connection between the assignments designated and the practices they are likely to experience outside the classroom. Therefore, there is a significant chance that learners may carry out the transmission of knowledge and skills and maintain their motivation.

Coaching is a way to support a shift from one step to another or from one level to another without imposing rules and choices. It is not about providing explanations or pouring knowledge related to grammar and vocabulary into learners' heads. It is about putting learners on the path to a goal. As a coach, the teacher engages learners in discussions that have significance to them so that they can build the responsibility for learning and thus be responsible for their progress. In this context, a coach believes that learners already possess knowledge, so her/his role is not to tell others what to do but rather listen to them and ask them questions through which they will identify their weaknesses without offence. Therefore, teachers should interact and cooperate with their learners, establishing their inherent ability to improve and evolve. In brief, a teacher, who coaches, facilitates and assists learning and growth for the sake of increasing learners' productivity. Such an attitude makes the classroom more enjoyable, dynamic and accessible in which both the teacher and learners share mutual accountability and feedback. Within this environment, teachers are not supposed to always give answers to their questions, but they instead ask questions to help learners think, reflect and figure out solutions. Coaching focuses on the learner as an individual instead of focusing on the problem encountered during the process. It helps learners improve their confidence, self-awareness and motivation.

5.2.4. Preparing Learners for Critical Thinking

Preparing learners to be critical thinkers requires some efforts from educators and teachers because they play a vital role in promoting those skills in EFL classrooms. Making

learners work in teams and think critically makes learners responsible and successful individuals. In other words, preparing learners to think and solve problems quickly is a crucial feature, regardless of what they are going to choose for their future occupation or profession. Although teachers have a good amount of knowledge about the importance of those skills, there is still a significant gap between what is known and intended and what is applied in the learning setting. Therefore, teachers should train and motivate learners to develop judgements and evaluation by providing them with complex situations in which they seek to find multiple solutions through real-world experiences. Also, the fact of preparing learners to reflect on others' assumptions and behaviours could develop their self-confidence and encourage them to collaborate with other individuals, especially in critical situations. Moreover, preparing learners to be critical thinkers requires teachers to "first emulate higher level thinking in their instructional practices" (Ball & Garton, 2005, p. 59). Therefore, teachers' behaviour in the classroom and their role in modelling and mentoring are essential to enhance critical thinking (Brookfield, 2012).

5.2.4.1. Teacher's Behaviour

Critical thinking training is a crucial element in developing learners' cognitive/intellectual abilities. Hence, teachers should adopt challenging behaviours in the classroom to improve learners' thinking skills. In other words, a supportive environment and appropriate teaching practices do influence the learning process. To teach CT more successfully, teachers should manage their way of teaching in such a way to promote inquisitiveness rather than informativeness. Questioning plays a vital role in fostering CT. Most teachers, as noticed during the observation sessions of this study, use the yes-no types and reference questions, but they rarely use deep and thought-provoking ones. In this case, the use of the verbs related to Bloom's Taxonomy in formulating questions could be very useful. Besides, it is the teacher's responsibility to create an active challenging environment that offers the prospective to learners to improve their critical thinking skills. In this context, Fisher (2007) and Santrock (2017) affirm that making learners play an active role in the classroom helps them to think critically. Consistently, teachers who create problem-solving situations allow learners to investigate, analyse, synthesize and create solutions. In addition to questioning, as an important factor in nurturing critical thinking skills, teachers should consider learners' motivation, especially when they are in the phase of finding solutions. In this respect, teachers need to provide reinforcement that encourages learners to pursue in finding more solutions to the issues being tackled. In this vein, Dörneyei (2001) claims that the "teacher's behaviour is a

powerful motivational tool."(p.120). Although there is no specific way to teach and evaluate CT, adopting effective strategies and approaches that promote active learning may facilitate the development of CT (Simpson & Courtney,2002; Velde et al., 2006). These teaching approaches and strategies should focus on the "how to think" rather than on the "what to think" process.

5.2.4.2. Fostering Learners' Intrinsic Motivation

Learning requires motivated learners to seek engagement in a new learning process. In this sense, motivation plays a vital role, especially in the EFL context. However, this requires teachers to use pedagogical teaching strategies to increase learners' self-confidence and motivation in a positive way. Santrock (2017) argues that motivation influences learners' intellectual skills. In this context, intrinsic motivation, which is the innate willingness to learn, is strongly related to promoting CT in the language classroom. Intrinsically motivated learners have the eagerness to take an active part in the learning process in which they are responsible for their learning and progress. In the same respect, Points (2003) states that "the degree of intrinsic motivation may well be related to perceptions about critical thinking."

To foster intrinsic motivation, teachers should:

- Create a positive and affectionate classroom atmosphere with learners.
- Use engaging strategies taking into account the learners' needs.
- Employ effective questioning that raises learners' curiosity and critical thinking.
- Challenge learners to set new solutions to already tackled problems.
- Create mutual trust. (teacher-learner/ learner-teacher / teacher-parents/ parents-children)
- Encourage creativity to accomplish activities.
- Invite learner autonomy and nurture self-esteem in learners.

5.2.4.3. Fostering Learners' Autonomy

The concept of learner autonomy is not an easy process, but it is essential in EFL teaching. Teachers should train and engage learners in autonomous learning in which learners become responsible for their learning process and decide on what to learn, how to learn and when to learn. In other words, learners set their learning objectives and most of all their goals. To reach those objectives, teachers and learners should work collaboratively to organize lessons in terms of materials and methodology without discarding the syllabus. Both autonomy and CT are interrelated and have positive impacts on learners' achievements. According to Raya et al. (2007), "the competence to think critically is coextensive with the notion of autonomy" (p.43). Both of them are indispensable and useful aspects for educational objectives. Teachers are

suggested to encourage autonomy in their teaching to improve different skills, especially critical thinking skills. The latter help learners solve problems by themselves. Autonomy allows helps them learn by doing, self-assess their learning progress, make judgments and become more aware and responsible for their learning process.

5.3. Methodological Recommendations

This subsection outlines some methodological recommendations and implications that could help teachers enhance critical thinking in their classes. Applying and adopting some instructional approaches and methods could spark learners' eagerness to think critically and solve problems related to their learning and also social life.

5.3.1. Instructional Approaches

The instructional approaches recommended in this section are flexible enough to foster critical thinking skills in EFL classrooms, assist and aid learners' needs, interests, abilities and motivation. This section suggests three practical approaches that teachers can apply in their instruction: inquiry-based, blended-learning and flipped-classroom approaches. Though the last two approaches are e-learning models, teachers should use them whenever their teaching objectives and tools allow. Blended-learning focuses on extending the learning that already takes place in the learning setting (provide additional support in the form of online videos), however; a flipping classroom focuses on giving more time to practical tasks rather than to the delivering of knowledge in the classroom.

5.3.1.1. Inquiry-Based Approach

The inquiry-based approach involves learners to make observations, ask questions, analyse, synthesize and interpret data and find solutions through self-reflection and apply them in real situations. This approach focuses on learner-centredness, and the teacher is regarded as a facilitator and a coach who scaffolds learning to help learners engage in examining and questioning a problem to find solutions. This kind of learning increases the ability to think critically and it nurtures learners to organize their thoughts in a self-directed way and explore the real world. This approach includes three types of inquiry: structured, guided and open. More details are provided in the following table.

Type of Inquiry	Description
Structured	The teacher provides learners with issues to examine and directives on how to deal with a problem. Learners decide the outcome.
Guided	The teacher decides the problem and materials. However, the process (how to explore the issue) and the outcome are determined by learners.
Open	Learners formulate the questions, investigate, analyse data, set the results and evaluate the product

Table 5.6: Types of Inquiry

5.3.1.2. Blended Teaching-Learning Approach

The blended teaching-learning approach has become a serious concern to foreign language teachers worldwide. Unlike mere e-learning, which corresponds to the use of digital technology only, hybrid/blended learning extends conventional face-to-face teaching with various kinds of technology-based instruction. McGee and Reis (2012) maintain that blended courses entail teachers and learners working together in blended instructional strategies. Generally, face-to-face and technology-based instruction is adopted to achieve educational goals that are educationally represented through tasks, activities and evaluations as relevant to make the learning process meaningful.

Mc Campell (2001) stresses that blended learning is a reliable alternative for those who would incorporate online forms for the first time in their education system and that certain aspects of the content may be adapted into the digital context without completing the course electronically. Teachers adopting this approach are recommended to simplify the activities depending on learners' computer skills. Teachers could present in the classroom the theoretical parts of the lesson, while tasks and activities for practice could be incorporated online (Silverwood, 2007; Precel, Alakalai & Alberton, 2009). The following figure illustrates some crucial concerns when implementing blended learning in the classroom.

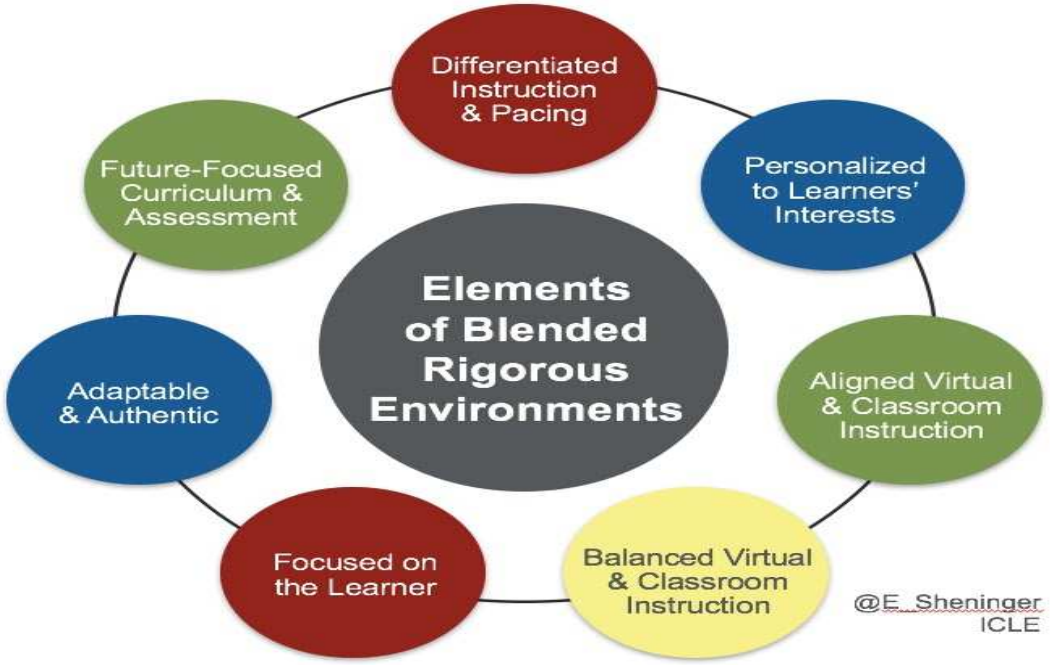


Figure 5.4: Elements of a Blended Learning Classroom[7]

To present lessons more successfully and to fulfil learning objectives, Hijazi et al. (2006) suggest the following advantages of using blended learning:

- Group targets are easily attainable.
- Standard multi-section offering lessons.
- Update courses to precisely measure the inherent advantages.
- Efficient class time usage
- Increases computer awareness between learners and teachers.
- Enlarges research opportunities.
- Documentation for learners is accessible 24 hours a day.
- Use of tools from the internet to facilitate class activities.
- Learners are engaged at any time.
- Collaboration is enhanced.
- Provides extra learning resources to learners if they need it.
- Minimizes the repetitive duties of the teacher.
- Expands interaction between student and teacher.
- An effective way to recognise the engagement and success of the learners.

[7] Retrieved on March 12th 2020 from: http://esheninger.blogspot.com/2017/12/blended-instruction-vs-blended-learning.html

- Including interactive programmes that generate immediate feedback and comments for some regenerative task.

The introduction of a blended learning approach encourages and promotes active learning, leading to a change from lecturing to student-centred learning. It promotes teacher-learner communication and allows the use of various techniques in teaching. The process helps teachers to prepare a lesson that learners can find interesting, engaging and enjoyable. The lessons are designed using innovative digital resources and delivered through online platforms and classroom sessions to involve learners in engaging activities such as discussions, debates, and oral presentations. The online content is accessible at any time for the learners.

Designing a blended lesson requires planning. Before planning the lesson, it is recommended that teachers take into consideration the content being addressed, the learners' needs and the teaching methods that go in line with the syllabus. Teachers should then determine and assign the topics to be presented through the online platform and in the classroom. For instance, the lesson introduction, class presentations, questioning sessions could be best taught in the classroom; however; lesson content, quizzes, tasks can be better delivered online. Therefore, teachers should meet the requirements of online courses and learning goals. Nevertheless, learners might not know how to handle blended learning. It is indeed essential that teachers offer explicit guidance and advice on how to tackle these online activities, they could provide an electronic attendance schedule to know whether learners accessed to the activities. It is worth noting that such platforms have become available in Algeria and are used at the level of the university.

5.3.1.3. Flipped Classroom Approach

To meet the learner's diverse needs, teachers should try to use different approaches and methods of instruction. One of the latest pedagogical approaches that may benefit a significant number of learners nowadays is the flipped classroom since it is a combination of technology and learning. The Flipped Learning Network (2014)[8] regards classroom flipping as a pedagogical approach in which traditional learning shifts from the group learning environment to the individualized education setting. It turns the learning environment into a dynamic, interactive learning atmosphere in which the instructor assists the learners in applying concepts and effectively involves them in the subject material. Overall, the traditional direct instruction is replaced with an active learning instruction. Besides, learners are introduced to different

[8] Flipped Learning Network (FLN). (2014) The Four Pillars of F-L-I-P™

material outside the school environment, generally through doing some readings and watching lectures on videos at home, and then using classroom time to do the more challenging work by integrating that knowledge, either through problem-solving, debates or group discussions. In the same context, learning is inverted which gives place to the application of the HOTS (analysis, synthesis, and/or evaluation) in class with the teacher's guidance and peers' support. While the LOTS, such as acquiring knowledge and comprehension of concepts, are done outside of the learning environment. In the traditional approach, the "first exposure" takes place through the teacher's classroom lecturing, whereby learners assimilate this knowledge through assignments at home. However, in a flipped classroom, the "first exposure" is done at home and the word "homework" shifts to "classwork" which is done in the classroom. The LOTS are done before class, and the HOTS engagement happens inside the classroom. The following figure illustrates the integration of Bloom' Taxonomy in a flipped classroom:

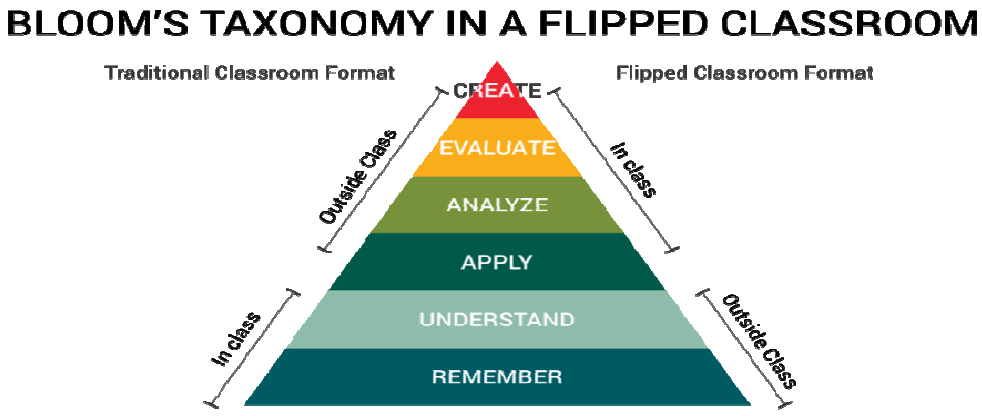


Figure 5.5: Bloom's Taxonomy in a Flipped Classroom[9]

To highlight the importance of this model, Bergmann et.al. (2012) provides the following advantages:

- It allows learners to get involved.
- It allows learners with specific skills to succeed.
- It reaches higher learning levels.
- Teacher-learner interaction is increased.
- Could help identify concepts for which learners struggle.
- Makes the most use of education technology.
- Fosters autonomous learning.
- Learners move through content at their level.
- It includes relevant pre-work material such as videos (pp.20-33).

[9] Retrieved on March 12th 2020 from: https://accelerate.uofuhealth.utah.edu/explore/how-to-flip-your-classroom-or-meeting-to-achieve-meaningful-learning

According to Tucker (2012), the flipped classroom can create a classroom atmosphere that applies active, constructivist and cooperative learning which is blended with the traditional-passive instruction used outside the learning setting which happens during video lecturing.

Within such environment, the teachers' role shits from the "sage on the stage" who transmits knowledge to a "guide on the side" who works collaboratively with learners, scaffolds and guides them throughout the learning process (Bergmann, Overmyer, & Wilie, 2012). Smith (1997, 2002) illustrates the role of the teacher as a guide adopting Paulo Freire's point of view about the education that "should not involve one person acting on another, but rather people working with each other," (Smith, 1997, 2002). However, there are also drawbacks to consider when determining whether it is an appropriate approach for all teachers to adopt in their teaching. It is also essential to mention that teachers should not flip all lessons in the syllabus. Some grammar lessons, for instance, may require a traditional instruction while others may be more conducive to try a "flipped" classroom. The drawbacks are as follows:

- Intensive need to plan the pre-work and in-class tasks.
- Learners may not fully participate in pre-work, which then challenges in-class time.
- Many teachers might be less accustomed to such an approach; the use of technological innovations can be frustrating.
- Some learners who might be accustomed to more passive learning might be less satisfied.

In another perspective, Jeff Dunn (2014) suggests six-step guideline to implement the flipped classroom in which teachers should: *plan, record, share, change, group and regroup.*

Steps	**Teacher should…**
Plan	• Identify the lesson. Set out the learning outcomes and the lesson plan.
Record	• Create videos/presentation on a PowerPoint. Ensure that it comprises all the essential points and objectives of the lesson; • Use videos only when necessary. It depends on the lesson's instructive objective.
Share	• Forward the video that should be engaging and clear to the learners; • Mention that the content of the video will be entirely explored in class.

Change	• Learners now have an idea about the lesson's content. They are eager to be more engaged.
Group	• Provide learners with tasks to complete in groups. Grouping is an effective strategy to debate and discuss issues.
Regroup	• Bring the class back together. Learners share their work and start questioning, which promotes debate and group discussions.

Table 5.7: Six-Step Guideline to Implement the Flipped Classroom

5.3.2. Instructional Teaching Strategies

Effective teaching techniques such as scaffolding, reciprocal questioning, and debate can be used as effective methods to improve awareness, knowledge, and implementations of the data provided in the EFL pedagogical context for learners. Various researchers have suggested strategies to help learners improve in CT among which active and collaborative learning that mainly focuses on learners taking responsibilities and sharing ideas in the classroom enhances opportunities to become critical thinkers (Slavin, 2011).

5.3.2.1. Scaffolding

All learners learn at the same frequency as other learners in a class, so teachers in all academic disciplines should always be creative to reach the needs of all learners, some of whom may need some guidance or others who may need more attention. One way to support learners is through teaching scaffolding. Scaffolding is a way to guide learners in their learning process, and it is removed once the learner can work autonomously. As a matter of fact, teachers should consider incorporating instructional scaffolding to teach new activities or techniques in multiple-stages, and therefore increasing educational scaffolding and chances for learners to attain the academic objectives. Such scaffolding may also involve active learning and cooperative learning to make the classroom a supportive and collaborative learning space. For other learning tasks, educational scaffolds such as the concrete structures for which they are named may be reused or reinforced. Educational scaffolding can lead to academic success that increases motivation and engagement. Also scaffolding instruction allows learners the experience of deconstructing complex processes into steps to be autonomous thinkers.

Teachers can select scaffolding techniques as guided practice. They could provide, in this method, a condensed version of a course, task, or an activity. When learners are engaged, teachers may slowly increase the complexity, intensity, or consistency of a task over time. Tteachers can opt to split the lesson into a series of mini-lessons that push learners successively

toward understanding. They could review in each lesson to see if learners are increasing their skills in doing so.

Teachers may use various tools to visually, verbally, and kinaesthetically convey the concepts. For example, scaffolding tools can be images, graphics, videos and any form of audio. They may choose to present a lesson in various forms. For instance, they could explain to learners a concept, and then support the explanation with a PowerPoint presentation or video show. Learners may then provide their own visual aids to clarify the concept better or to illustrate it. As the last step, they may ask learners to explain in their own words their interpretation of the concept under analysis. Images and graphics are a strong visual representation of concepts for all learners, and especially for EFL learners. Using graphs or conceptual maps and planners may help all learners creatively arrange their thoughts into words.

5.3.2.2. Reciprocal Questioning

Questioning is the process of learning where learners become actively involved, and they also become the performers, managers and individuals responsible for their own learning. Questioning awakens interest and activates learners' reasoning skills. Also, questioning, collecting, analysing, and applying information make learning more efficient and meaningful. This learning technique encourages learners to learn by doing, and they start asking questions to express their thirst for curiosity to explore the material and share ideas in groups. Involving learners allows them to interact and be responsible for their learning. The teacher's questions are also beneficial if they are correctly framed, and questioning strategies help learners orient themselves and get interested in the work to be done. Thus effective questioning may cyclically include another one.

To stimulate a discussion, the teacher who wants to control learning by problematising situations can ask questions and be questioned to provoke a debate. Learners, therefore, will act by challenging and questioning when at action. Questioning needs to be placed at the core of the teaching process because a comment can lead to a question, and a question can open a discussion. EFL teachers could use Guided-Reciprocal Peer Questioning or Reciprocal Questioning (ReQuest) strategies in which learners take a predominant role (learner-teacher, learner-learner). This strategy helps learners in a group of four each to take some roles like summarizers, questioners, clarifiers or predictors. Reciprocal Peer Questioning is requested as a valuable method to encourage critical thinking skills and critical reading competences. The questioning and exchanging of solutions in small groups may help learners develop their

critical examination and interpretation of texts (Simpson, 1996). Many English language learners find that asking and answering questions is a challenging activity. So it is worth noting that teachers should specifically engage learners in such a strategy during ReQuest (Berkeley & Barber (2015), Palinscar & Brown (1984) and Rosenshine & Meister (1994) proposed some steps to take in a ReQuest strategy:

- Split the class into small groups, and include a reading list for each group.
- Explain the ReQuest method: learners read a sample and create questions for discussion with the teacher.
- Give learners time to independently review their choices and formulate a range of suggested questions.
- Let the groups merge and analyse the questions asked by the group members into a final design.
- One representative from each group asks the teacher the questions during the class discussion. Teacher's responses aim at enhancing learning.
- In a post discussion, ask learners to identify the techniques they have used in writing and the questions that are enhanced.

Teachers should provide examples of common question types and design the self-questioning procedure in reading to enable learners to stimulate higher-level questions. One useful way is to give learners common questions as prompts. Therefore, teachers' questioning is an essential step in this process. Teachers should provide learners with higher-level questions such as moving from cause and effect which requires learners to analyses the coloration among ideas to making predictions and evaluating the issue by giving evidence like giving opinions, providing agreement or disagreement and supporting the answer with a piece of evidence (King, 1995).

5.3.2.3. Debates

Debate is a structured method of discussion which is embodied as an effective instructional strategy to support CT. It is also a method of active learning that encourages learners to study a topic area, to ask clear and concise questions, to recognise ambiguities and weaknesses and to construct conclusions based on evidence. The strengths of the in-class debate are well recognised. Debates have been used in classes which address critical issues. Learners were made knowledgeable of emerging essential subjects in their fields by intervening in debates (Munakata, 2010). Debate encourages learners to be engaged in essential subjects of

the debates about the latest progress. The skills ingrained will indeed motivate learners to be active members in specific disciplines throughout the immediate future (Munakata, 2010).

Although debate is an adversarial practice, it aims to provide learners with multiple potential effects. Debate improves the speaking and listening experiences in the classroom. During a debate, learners take turns to reply in reference to their adversary's claims. At the same stage, other learners who are involved in the debate or the audience should actively listen to claims put forward or demonstrate concrete evidence to support their answers. There is a variety of different techniques the teacher might use in a classroom debate such as the fishbowl, advocate decision-making, the four corners, and inner-outer circle debate.

5.3.2.4. a. The Fishbowl Debate

The fishbowl debate is to raise debate around a question with a large group on a particular issue. It is a process of reflecting on a situation or problem in order to examine it or investigate it, maximising the interaction through open and unguided debate. The teacher invites a group of learners in the front of the classroom to take seats in half-circle arranged chairs facing the audience (bowl-shaped).

1. The rooms are equipped with chairs in two concentric circles. The teacher puts five chairs in the middle, and the others are positioned outside the circle. It may go up to eight chairs in the centre for larger groups. The teacher should have at least two questions set. For example:
   - What are the conditions to be set or the solutions to be proposed in order to overcome 'these' challenges? (The issue has already been introduced).
   - Who will assist you and help you overcome this difficulty, and how?
2. The teacher invites four learners to sit in the middle of the circle and leave one chair empty. These learners will take the responsibility of being the first to discuss the issue (Learners are identified for the first round in advance).
3. The teacher takes five minutes to explain the guidelines to the group. To start a debate, the teacher first addresses a question to the learners in the centre of the circle. Those who wish to join the debate will stand up and take a seat in the empty chair and participate in the discussion. In exchange, one of the participants sitting in the centre of the circle would need to get up and sit in the empty chair outside the circle. Learners sitting outside the circle are often encouraged to observe and take notes.
4. The teacher starts the discussion by asking the first question and allows at least twenty minutes to learners to think and discuss. Then learners from the centre of the circle are invited to respond, opening a discussion, i.e. they should not take turns responding to the

questions, but rather discuss the question and exchange their answers. The teacher should be as discreet as possible and intervenes only to reframe the discussions when necessary. After about twenty minutes, the teacher stops the discussion and asks the second question, and allows twenty minutes for the discussion. The teacher then invites learners who wish to form the first discussion quartet and start the activity again.

5. Synthesis and Conclusions: the teacher returns to the largest group, i.e. the observers and allows them fifteen minutes to comment on what they jot down and write everything on a large poster paper.

5.3.2.4. b. Advocate Decision-Making Debate

Learners are put in groups of three and are assigned a topic for analysis. A learner defends the issue; another one is against it, and the third learner plays the role of a jury member who takes decisions. The decision-maker is supposed to generate a series of questions for the representatives to raise. Learners could use those questions as a layout of their discussion. The winner will be revealed by the decision-maker when the debate ends.

5.3.2.4. c. Four Corners Debate

This debate would drag up and push learners to use their critical thinking skills. This activity incites all learners to get involved by allowing each to take a specific role. This strategy can be used as a warm-up tool which incites learners to explain a point about a theme they are planning to study. It could also be an essential follow-up practice by asking learners to demonstrate what they have understood when constructing their statements or using it as a pre-writing task to generate arguments and provide evidence before submitting an essay. Learners are provided with an issue, and then they are asked to design a well-supported essay, expressing their perspective either *strongly agree*, *agree, disagree or strongly disagree.* Then, learners will move to their corresponding corner of the room and start discussing and analysing their thoughts. Then a speaker from each corner is invited to state the group opinions about the topic. The groups could change their first opinion if they want to. In this stage, the teacher invites them to discuss the issue again and then ask them to write new essays elaborating their opinions on the issue.

5.3.2.4. d. Inner-Outer Circle Debate

This type of debate engages learners in listening and responding to the opinions of others. It is an outstanding technique for pre-writing. There are different ways to organize it, depending on the number of learners in the class. The main principle is to form an inner and an

outer circle. For example, the teacher arranges learners in three or four groups and then asks group one learners to form the inner circle and group two to form the outer circle facing group one. Learners of group three and four stay around the perimeter of group two, facing the circle. Then, the teacher selects issues that motivate learners and asks the learners of group one to discuss it while the other groups listen and take notes. The teacher guides, coaches, direct learners with empathy, creativity, tolerance and flexibility, and make sure they are all participating and not having side conversations. Self-assessment is to be encouraged.

At the end of the debate, learners, for example, are asked to use the gathered information to write an essay. This strategy has various benefits, such as:

- Enhancing critical thinking
- Improving the capacity to argue and listen
- Intensifying vocabulary
- Providing control, presence and motivation for learners
- Enabling learners to synthesize
- Improving oral verbal communication skills.
- Improving some skills and supply facts and arguments to justify one's perception.

Thanks to this task, learners are expected to:

- Listen and respond to other people's opinions.
- Think about several points of view on a difficult subject.
- Write an editorial opinion about the issue tackled during the session.

5.3.3. Interactive-Based Activities

When teachers deliberately want to promote higher-order thinking skills, they should provide learners with assignments that require higher-order thinking because the answers of learners to tasks are determined by the sort of questions raised in class. Therefore, teachers should adapt their activities to reach the aim of the lesson by using authentic and motivating alternative tasks. Adapting tasks engage learners in the learning process. A set of tasks could be used such as telling stories in a prose or conversation form, multiple games, simulations and scenarios, audios and videos, think-pair-share tasks and many other strategies that involve learners and make them very active. Nevertheless, modelling and designing evaluative assignments or questions that demand higher-order thinking is no means an easy task (Leighton, 2011). This challenge is due to the difficulty that teachers encounter to incorporate

the concept of CT into practical evaluation items which determine higher-level thinking abilities. To be able to enhance CT skills, teachers should endeavour to model practical tasks which are compatible with higher-order skills and which allow learners to analyse, make judgments and synthesize. Some interesting activities interactive activities are presented in the following sub-sections.

5.3.3.1. Information Gap Activities

It is significant to mention that the objective of an information gap activity is to develop communicative skills and proficiency, not to learn additional knowledge. Such activities have several positive impacts in terms of providing learners with an ability to pursue acquiring the necessary skills and vocabulary that they have, indeed, been taught. Learners can practise fluency, sentence structure, correct grammar, adapt to different situations and ask for interpretation. An information gap task is nearly identical to a scrabble game: a small amount of information and resources are implemented to address a problem or a puzzle. These activities have a range of advantages:[10]

- Improve learners' speaking time: learners take actions with teammates to accomplish the aim of the task while the instructor encourages the stimulation: planning, implementation and scaffolding, and providing assistance during the task.
- Maximize learner motivation: learners can interact while they share and gather information required to achieve the assignment for a goal. This activity may include group, pair or whole-class interaction, adding a wide array to a course.
- Implement realistic communication contexts and materials: teachers should adapt information gap strategies to achieve the communicative needs of learners such as questioning, following instructions, providing feedback and coming up with solutions with the collaboration of peers. Interaction is often unsolicited during information gaps; though teachers provide scaffolding and language structures. In everyday circumstances, learners will experience a representation of the interactive form. In addition, information gap tasks should be planned in such a way to include relevant resources such as images, advertisements, and other interactive features in the real world.
- Enhance critical thinking skills and collaboration: learners also have to develop problem-solving skills during information gap tasks, assess the incomplete information, identify and

[10] Adapted from : https://americanenglish.state.gov/files/ae/resource_files/background_june_final.pdf

interpret the gathered data, obtain feedback from others, and cooperate with teammates to accomplish the goals of the task effectively.

5.3.3.2. Role-Play Activities

Involvement in simulation-based role-play activities is one method of enhancing CT. Role-play scenarios help learners work collaboratively and get them engaged in a problem-solving situation of a present condition. To improve CT among EFL learners, teachers can adopt specific strategies that involve learners in active learning. Therefore, active learning enables learners to transfer and apply knowledge in an EFL context.

Lan et al. (2008) define role-play as ‘‘an experiential learning technique with learners acting out roles in case scenarios to provide targeted practice and feedback to train skills’’ (p. 356). There is increasing evidence to indicate that role-playing often allows learners to integrate and improve their knowledge in a specific field (McCarthy & Anderson, 2000).

Practices such as role-play, problem-solving tasks focus mostly on a process rather than content. They involve the motivation and active engagement of learners. It is acknowledged that role play can improve CT by challenging learners to explain real-life situations in various possible circumstances, and it can also be an appropriate instructional method to promote CT among elementary classroom learners (Rashid & Qaisar, 2017).

5.3.4. Classroom Assessment Strategies

The 21st-century lifelong learning requires developing different skills and competencies, which are the key to success. Nowadays' classrooms contain learners with multiple backgrounds and with a wide range of skills and interests. Therefore, to fulfill learners' needs, teachers should adopt not only different teaching methodologies and instructions but also apply different assessment strategies to help learners enhance their skills so that they become autonomous and critical thinkers.

Moreover, teachers will draw on several ways to assess how learners are learning and then use those assessment tools to improve meaningful instructional improvements. The 3AS syllabus requires teachers to use the three main different assessment types, namely diagnostic, formative and summative assessment. This section sheds light on the formative assessment since it strengthens the learning of all learners across all the teaching-learning processes (Black et al., 2003). Some studies reveal that learners with low achievements need more support than others; for that reason, formative assessment could be of great benefit for them (Black &

William, 1998). This analytical use of assessment provides teachers and learners with feedback throughout the teaching process. It differs from the summative assessment, which refers to the process after the instructional phase, and it assesses the amount of learning acquired and often takes place at the end of a semester or school year. It is generally given in the form of test papers and scored with marks. Learners succeed and achieve more significant improvements when the insights obtained from formative feedback are productively used to fulfil their individual needs and help them become reflective practitioners. While assessment by teachers is a standard procedure in education, combining multiple feedback strategies (self-peer and teacher feedback) could benefit learners and help them judge, evaluate and reflect on their learning. Such strategies are particularly suitable for the PBL methodology.

5.3.4.1. Suggested Cyclical Critical Thinking Assessment Model

The figure below illustrates a proposed formative model to assess learners' critical thinking that involves one core element, *instructional teaching strategies* and four phases:

- *Phase one:* Practical Activities
- *Phase two:* Self-Peer -Teacher Feedback (Multiple Perspective Feedback)
- *Phase three:* Verifying Learners' critical thinking
- *Phase four:* Formative Assessment

The model starts with providing adequate *instructional teaching strategies* such as *scaffolding, reciprocal questioning and debating* that have been already discussed previously in this chapter. Teachers then are advised to provide learners with some *practical activities like role play and information gap in order to stimulate their interest and help them engage in authentic problem-solving situations*. Then, what could be useful also is to engage the classroom in a *self-peer and teacher feedback phase* where not only the previously acquired language is assessed but also the thinking skills that help each learner identify her/his thinking failures and the type of thinking processes. After validating learners' CT skills while practising the tasks, teachers could potentially provide them with formative assessment-based tasks so that learners will be able to adjust their misconceptions and reasoning to maximize their higher-order thinking productivity and minimise CT failures. This model helps giving feedback in order to prepare potential learning plans, develop behaviours and promote critical thinking skills. Therefore, each phase in this developed framework would play a significant role in giving feedback. So if it is adequately applied in the learning setting, it can stimulate higher-order reasoning and active learning.

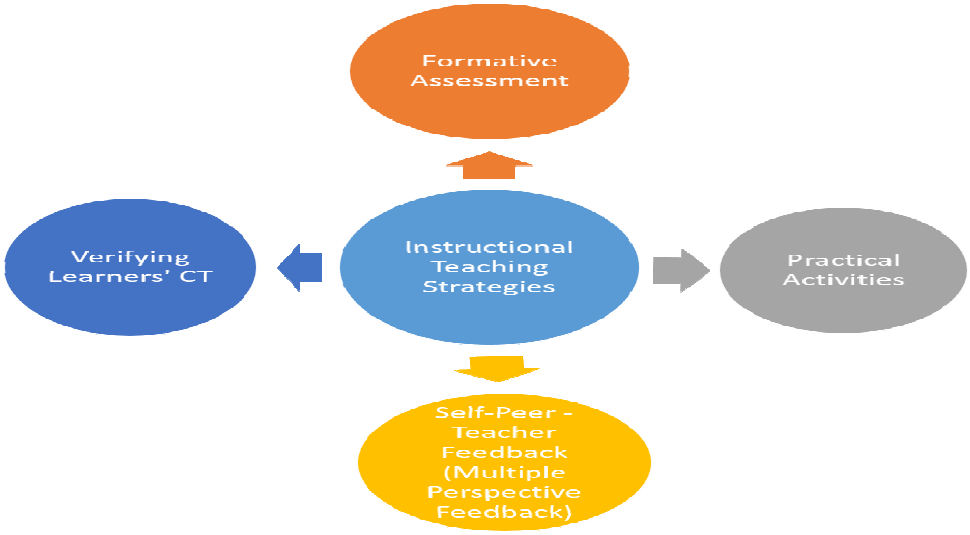


Figure 5.6: Suggested Cyclical Critical Thinking Assessment Model

5.3.5. Project Development as a Process

Projects involve quite a wide range of obstacles. Conducting a successful project means moving from an initial point to a closure point effectively. Many teacher consider the project as a product designed by learners and presented in the classroom. However, dealing with projects as only a final product would restrict and limit the effectiveness of the learning progress. To remedy this misconception, teachers had better take projects as a process to be emphasized during the whole unit, which is in fact considered as a project by the MNE. In this case, teachers should figure out and adopt an effective project plan which leads to measurable competences and skills. For this purpose, projects are subdivided into different and more comprehensible phases. The latter could, therefore, encourage both teachers and learners to pursue and manage projects in such a way to facilitate their implementation. Such practice helps learners make progress both at the level of language skills and thinking skills. The following figure illustrates suggested project development phases that could help teachers organize their projects, especially with third-year classes where the project is not given prominence as confirmed in this research. This section also provides a suggested model of project design/ plan that was adopted in this research, and which led to a significant success in the conduct of the project.

Figure 5.7: Project Development Phases

5.3.5.1. Suggested Model of a Project Design

<table>
<tr><td colspan="2">Project Title : ..... Theme: .....</td></tr>
<tr><td colspan="2">Type of Project: .....</td></tr>
<tr><td colspan="2">Research Speaking: .....</td></tr>
<tr><td colspan="2">Skill/ Technique to Cover: .....</td></tr>
<tr><td colspan="2">Higher-Order Thinking Skills: Analysis, Synthesis, evaluation</td></tr>
<tr><td>Time Needed:</td><td>6 weeks</td></tr>
<tr><td>Initiation phase</td><td>Designing phase</td></tr>
<tr><td>✓ Introduce the theme of the project
✓ Discuss some interesting topics.
✓ collaborate with your learners to agree on a theme</td><td>Set goals of the project:
✓ Be specific about what you want learners to achieve.
✓ Create benchmarks you can use to assess the accomplishment of these objectives.
✓ Define the main objectives and what it would take to reach them.
✓ Let them be ready to work for a specific goal that motivates them.
✓ Establish a roadmap for accomplishing the objective.
✓ The target should promote learners to work collaboratively.
✓ Set the project scope and duration.
✓ Objectives should be orientated according to learners' interests and needs to make them build an emotional bond. That would boost their productivity.
✓ Split broader milestones into smaller objectives that can be accomplished easily.
✓ Be adaptive and adjust targets when necessary if new issues arise.</td></tr>
<tr><td colspan="2">Development phase</td></tr>
<tr><td colspan="2">Step one :
✓ Define the project goal;
✓ Determine the outcomes and objectives;
✓ Apply Know-Wonder-Learn Charts. Learners will be able to reach prior knowledge, brainstorm concepts, think about research issues, and think deeply about the theme;
✓ Use KWL to assess the willingness and interest in the subject matter;
✓ Use it again during the project to encourage metacognitive skills;
✓ Let learners know about all these steps and the assessment criteria;
✓ Ask learners to form groups.
Step two:
✓ Determine the final outcome and the audience of the project;</td></tr>
</table>

- ✓ Ask them to choose how they are going to present their project: posters, ID cards, gallery walk, a guidebook or a short presentation.

Step three:

- ✓ Help them gather data;
- ✓ Set your rules, be a coach and let them work;
- ✓ Provide them with research resources if needed;
- ✓ Set a timetable collaboratively.

Step four:

- ✓ Prepare learners for language demands during the unit;
- ✓ Provide learners with activities containing specific vocabulary about the theme;
- ✓ Prepare them for the data collection tasks.

Step five:

- ✓ Orient learners to use some interesting books or consult specific Websites to collect data.

Step six:

- ✓ After collecting data, provide learners with more activities related to the topic so as to prepare them for the language demand and to help them to compile and analyse the gathered information.

Step seven:

- ✓ Ask learners to work in groups to compile and analyse the gathered data, organize and discuss the value of the information that they have collected, keeping only the data that is important to complete their project.

Step eight:

- ✓ Assign more tasks to prepare the learners for the language required for the final product. These tasks should focus on skills such as holding argumentative and persuasive debates, adopting effective oral presentation style and revising and editing their written work successfully;
- ✓ Provide assistance in the form of open discussion with the groups.

Step nine:

- ✓ Learners present the final outcome of their project.

Step ten:

- ✓ Learners evaluate the project in terms of language, content and pertinence. (The teacher could have provided them with an evaluation checklist before they start the project);
- ✓ Ask learners to give some suggestions to help design future projects;
- ✓ Provide them with feedback on their oral presentation and the content of the project. (The teacher could have provided them with an evaluation criteria grid before they start the project).

Formative Feedback phase

Tools to be used by the teacher:

1) Before conducting the work on the project

- ✓ KWL Chart

2) During the project development phase

- ✓ Research Quiz
- ✓ Questioning
- ✓ K-W-L Chart
- ✓ Peer Feedback

3) After the completion of the project

- ✓ K-W-L Chart
- ✓ Questioning
- ✓ Oral Presentation
- ✓ Self-peer- teacher feedback

Table 5.8: Suggested Project Design Template [11]

5.4. Conclusion

The current chapter provides some suggestions and implications which are addressed both to trainers and teachers to propose specific classroom instructions that could help enhance and assess learners CT.

Third-year learners need to have not only sufficient knowledge about grammar and language but most importantly a significant critical thinking ability that could prepare them for the workplace and for life. Many critical thinking supporters claim that thanks to CT people become "more effective thinkers, better at making reflective decisions, better at addressing life's problems with reasons and evidence" (Facione, P. & Facione, N. 2013, p.9). Bringing and enhancing CT in EFL classes is by no means an easy task for both teachers and learners. However, adopting certain behaviours, strategies, and techniques may help to transform today's EFL grammar-based classrooms into critical thinking-based ones. In this vein, the current research has come to the conclusion that the project-based approach is only one of the most effective strategies that could assist learners to enhance their higher-order thinking skills. Although active learning requires many efforts from learners, it remains a necessary ingredient for the implementation of the project work and thus for the enhancement of CT. To support and help learners to overcome encountered learning issues, teachers can adapt and modify instruction according to learners' needs, interests and learning styles to improve not only their comprehension of the classroom lessons and tasks but also the quality of their work. Therefore, that requires a great effort from teachers. However, with the intensification of professional development training programmes, teachers could easily overcome those encountered classroom difficulties. To participate humbly in this development, the researcher has suggested a sample course design about integrating CT in teacher training, a cyclical model to assess CT

[11] Adapted from : Eby, K. (2018). Demystifying the 5 Phases of Project Management, https://www.smartsheet.com/blog/demystifying-5-phases-project-management

in EFL classroom and a model of project design/plan. In fact, training teachers effectively can be a step toward the fostering of CT in the EFL context and preparing learners for lifelong learning.

General Conclusion

GENERAL CONCLUSION

This research was conducted with the principle objective of investigating the extent to which project work contributed as a pedagogical tool in enhancing learners' critical thinking skills in an EFL secondary school context. The data gathered from the content analysis of the materials, questionnaires, classrooms observation and pre-post-tests was applied to answer the four research questions mentioned in the general introduction and to confirm the stated hypotheses.

In an attempt to validate the significance of those hypotheses, empirical research was carried out in three regions of Algeria: Mostaganem, Oran and Tlemcen, with seventy-one (71) teachers and a large population of one hundred and ninety (190) learners from different secondary schools. Also, an experimental action research was conducted with twenty (20) learners from a secondary school in Mostaganem. The mixed methods approach was used to collect data. Some collection tools have been employed in this study, namely content analysis, questionnaires for teachers and learners, classrooms observation and pre-post-tests.

This thesis comprises five main chapters containing two main sections: theoretical and practical. The first chapter is a review of the related literature about critical thinking theories and models, and the second chapter describes the theoretical underpinnings of project pedagogy. Moreover, the third chapter describes the research design and the main research tools. The fourth chapter supplies an analysis of the results collected and an interpretation of the main findings. In addition, the final chapter puts forward some recommendations and proposes the following sample pedagogical tools:

- A critical thinking course design for professional development;
- A cyclical assessment model to assess learners' critical thinking skills in EFL classes;
- A suggested model of project work design based on Stoller's framework which the researcher has applied in this study so that it could help teachers in the future to conduct and plan project work effectively.

To prove the validity of the **first hypothesis**, the researcher analysed the third-year syllabus, accompanying document and the textbook. The research results showed that project work is given prominence both in the syllabus and the accompanying document. That indicates that the syllabus designers concentrated on fostering higher-order thinking skills and developing the necessary 21st century skills through the project pedagogy. The results also revealed that project work is also included in the SE3 Textbook, and the tasks proposed in each

unit help learners develop aspects of language and other abilities such as the cognitive, communicative, and writing skills that lead them to the final outcome.

While project work is highly recommended in the syllabus and even explicitly presented in the textbook, it appears marginal in the classroom practices because it is not well tackled and planned; moreover, teachers are not well prepared to optimize such a method. The study also showed that the project work is a step-by-step process that creates preparation for life-long learning and hence emphasizes learner-peer-content engagement which is more significant than the final product itself.

Overall, it is noteworthy that the *New Prospects* textbook stands as an essential tool and plays a pivotal role in the ELT, despite the shortcomings found in it. Teachers had better not consider it as the unique tool in their teaching and follow it blindly. This assumption goes in line with a quote cited in the *ELTalgeria* website, advising teachers to avoid going "by the book slavishly [because it is just a tool] to serve you, not the other way around." [12]

In order to test the **second hypothesis**, an attitudinal questionnaire was administered to seventy-one (71) teachers in addition to the attendance of thirty classroom observation sessions. The results obtained from the teachers' questionnaire showed that most teachers are adequately knowledgeable about teaching theories and methods; however, due to some constraints like classrooms crowdedness, the length of the programme, lack professional training workshops and seminars, mentors' guidance on classroom practices and peer-to-peer classroom observation sessions, their attitudes and classroom practices hinder the development of learners' critical thinking skills. Although the project work is incorporated into the syllabus, most teachers acknowledged that they did not assign projects to third-year classes because, according to their answers, it was time-consuming though they agreed on their significance in promoting and improving learners' critical thinking skills. The findings also indicate that teachers were aware of their responsibilities in enhancing learners' skills and especially critical thinking. The majority of them assumed that their role was essential and that guidance was a crucial part of the learning process, but nearly all of them admitted that they did not know how to enhance that skill.

The results also showed that numerous barriers might hinder the growth of CT skills and the application of PBL in the third-year classes. In this vain, teachers mentioned some obstacles such as the lack of teachers' experience, crowded classrooms and time constraints related to the

[12] https://eltalgeria-officialdocuments.webs.com/

completion of the English programme before learners set for the baccalaureate examination. According to the questionnaire analysis, most of the teachers (70%) claimed that they incorporated Bloom's higher-order thinking skills in their teaching; however, only 37% of them applied the divergent questioning which is the type of questions that leads learners to deep thinking.

The results of the classrooms observation confirmed the second part of the second hypothesis which implies that classroom practices are nonconductive to the development of learners' critical thinking skills. Hereinafter a summary of those results:

- The vast majority of teachers concentrated on convergent questions focusing on knowledge reminiscence.
- A minority raised questions that promote critical thinking skills.
- Teachers seldom ask their learners to evaluate adequacy, reliability, integrity or validity; instead, most practices pursued an intensive grammar course.
- Collaborative work and pair work strategies were absent, which limits interaction with other individuals.
- The learning process was not thought-provoking, and the lack of these strategies is not beneficial in boosting of the high-order thinking skills.
- Technological tools or mindtools such as computers, projectors were absent in the classroom setting, which is one of the obstacles that may limit active learning.
- Learner-centredness was not really encouraged, and teachers were always present in the teaching/learning process.
- The majority of teachers were lecturing, explaining everything; consequently, most of the learners were passive, less engaged and dependent on the teacher.

Regarding the **third hypothesis**, the results obtained from the learners' questionnaires revealed that the majority of them were interested but not motivated to do projects. 93% of them confirmed that the role of the teacher was important in motivating them. That implies that a negative attitude and lack of motivation can stand as a barrier in the language class. Therefore, motivation is an important factor for the implementation of PBL, and teachers' practices and behaviours in the classroom play a vital role in encouraging learners to do projects.

As far as the **fourth hypothesis** is concerned, the results prevailed from the experimental study confirmed to a great extent that project work as a process had a positive

effect on the experimental group. This process developed not only their cognitive abilities but also their affective and psychomotor abilities. It promoted higher-order thinking skills and enhanced learners' motivation.

The study also confirmed that the readiness for the application of the project pedagogy is not only focused on adequate knowledge of PBL structures and procedures but also on adopting an effective way to practise this approach in the learning settings. Besides, the experiment conducted in this study confirmed that critical thinking skills are fostered except if teachers adopt certain behaviours such as the use of higher-order thinking questioning types and the planning and implementation of the project work methodology. In other words, to move from theory to practice may produce more successful, more autonomous and more motivated critical thinkers. This study also showed that project work is not applied in the third-year classes although the syllabus designers gave a significant place to PBL in the third-year syllabus. However, any creative syllabus requires not only fertile and vigorous planning from the teacher but also cooperation between the teacher and the learner. Also a conductive teaching environment allows learners to be more involved and ready for the thinking critically. Effective planning of PBL processes helps learners be motivated and interested to reflect on their learning and thus create in them a feeling of openness to thought-provoking discussions and thought-leadership.

There are several theoretical and practical recommendations provided in the context of the present research findings. From a theoretical perspective and to give more depth to the results obtained, this study should be performed with all Algerian secondary learners from different areas of the country, and the impact of various teaching strategies to strengthen critical thinking skills should be also investigated. However, from the practical perspective, essential techniques of thinking enhancement should be integrated into secondary school EFL syllabuses. In addition, English teachers should be trained and assisted in incorporating appropriate instructional strategies in their teaching process effectively; adequate contexts should be requested to encourage the development of critical thinking skills in EFL classes for both learners and teachers.

Enhancing critical thinking in language learning seems likely to be a field that will continue to expand, and several studies need to be conducted to determine the best ways to promote CT. This research would hopefully serve as an example of an attempt to encourage the adoption of project pedagogy to enhance and strengthen critical thinking skills in EFL classes so that learners' level of cognitive skills develops progressively. Besides, it might make

teachers aware of the importance of CT skills in preparing learners for lifelong learning. However, the findings of this research might not be generalized since the study used only a limited sample of the population in the context of secondary education in Algeria. Besides, observing thirty EFL teachers does not guarantee common practices from all secondary school EFL teachers across the country.

Future research may involve the examination of CT and project pedagogy notions in middle schools and universities. Moreover, further research may also include investigating other teaching methods and strategies that could help to encourage and develop CT skills among learners in the Algerian EFL classes. Therefore, some questions could be raised, for example:

- To what extent does the flipped classroom model encourage CT skills?
- To what extent does the classroom debate strategy foster CT skills?

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APPENDICES

Appendix A: Questionnaire for Teachers

Questionnaire for Teachers

(Electronique version)

The purpose of this questionnaire is to explore questions on teachers' classroom practices and how students respond to them. The results of the survey can potentially be analysed and used in helping language teachers to adjust their practices according to learners' profiles and learning styles so as to develop learners' 21st century skills.

Your participation in this research is confidential and no personal identifiable information will be shared, so please answer every question **according to your ability**.

Directions:

- Please write (**x**) to mark your answer in the appropriate space **[ ]**next to the yes/no questions.
- Please mark the right box(es) with (**x**) in the tables.
- Please use the space between the square brackets **[ ]** to write your text/answer.

---

1. Age: [ ] **Gender : [ ]** **Province : [ ]**

2. How long have you been teaching English? Number of years: **[ ]**

3. What language teaching approaches are you familiar with? **[ ]**

4. Which one (s) do you prefer to apply in your class? Why? **[ ]**

5. Which one do you like least? Why? **[ ]**

Your opinion on teaching/learning approaches

6. Have you ever encountered the term '**problem-based learning**'? Yes**[ ]** No**[ ]**
If yes, what does it means? **[ ]**

7. Do you assign any problem-based activities to your learners? Yes**[ ]** No**[ ]**
If yes, …**A)** how often**?** Mark the right box with "x".

always **[ ]** Often **[ ]** Sometimes **[ ]** Rarely **[ ]**

B) name those activities. **[ ]**

8. Have you ever encountered the term '**cooperative learning**'? Yes **[ ]** No**[ ]**
If yes, what does it means? .**[ ]**

9. Have you ever encountered the term '**experiential learning**'? Yes**[ ]** No **[ ]**
If yes, what does it means? .**[ ]**

10. Have you ever encountered the term '**learner-centered teaching**'? Yes**[ ]** No**[ ]**
If yes, what does it means? .**[ ]**

11. How comfortable are you with lecturing i.e. presenting and explaining lessons with details? Mark the right box with "x".

very comfortable **[ ]** comfortable **[ ]** slightly comfortable **[ ]** Uncomfortable **[ ]**

12. Who corrects students' mistakes? Teacher (you) **[ ]** The peers **[ ]**
If you do, why? How often?

always **[ ]** Often **[ ]** Sometimes **[ ]** Rarely **[ ]**

13. Who proofreads students' written work? Teacher (you) [ ] The peers[ ]
If you do, why? How often?

always [ ] Often [ ] Sometimes [ ] Rarely [ ]

14. Do you apply individual work in class? Yes | | No | |
If yes, how often**?** Tick the right box.

Often [ ] Sometimes [ ] Rarely [ ]
If no, Why? [ ]

15. Do you apply group and pair work in class? Yes [ ] No [ ]
If yes, how often**?** Tick the right box.

Often [ ] Sometimes [ ] Rarely [ ]

If no, Why? [ ]

16. Do you encourage students to visit the library and practise some tasks? Yes[ ] No[ ]
If yes, how often**?** Tick the right box.
Often [ ] Sometimes [ ] Rarely [ ]

17. Do you encourage students to take part in decision-making discussions? Yes[ ] No[ ]

18. Do you adapt the tasks of the textbook according to the students' levels and learning styles?Yes[ ]No[ ]
If yes, how often**?** Mark the right box with "x".

Often [ ] Sometimes [ ] Rarely [ ]

19. Have you ever encountered the term '**learner autonomy**'? Yes[ ] No[ ]
If yes, what does it means? [ ]

20. Do you encourage learner autonomy in your class? Yes[ ] No [ ]
If yes, … **A)** how often**?** Mark the right box with "x".

always [ ] Often [ ] Sometimes [ ] Rarely [ ]

B) How do you do it? [ ]

Your opinion on Critical Thinking (CT)

21. Do you provide your learners with the following types of instructions/strategies and how often? Mark the right box(es) with "x".

	How often?			
	Very often	Sometimes	Rarely	Never
Interpreting pictures	[ ]	[ ]	[ ]	[ ]
Checking answers	[ ]	[ ]	[ ]	[ ]
Role playing	[ ]	[ ]	[ ]	[ ]
Puzzle games	[ ]	[ ]	[ ]	[ ]
Scrambled Items	[ ]	[ ]	[ ]	[ ]
Four Corners	[ ]	[ ]	[ ]	[ ]
Debate	[ ]	[ ]	[ ]	[ ]
Other:	[ ]	[ ]	[ ]	[ ]

22. Do you incorporate Bloom's higher-order thinking skills (analysing, evaluating, creating) in your teaching? Yes [ ] No[ ]

If yes, how ? [ ]

23. What type of questions do you ask your students? Mark the right box(es) with "x".

	How often ?			
	Usually	Often	Sometimes	Rarely
Close-ended (Choosing from a set of options)	[ ]	[ ]	[ ]	[ ]
Open-ended (No options provided)	[ ]	[ ]	[ ]	[ ]

24. How would you rate the questions you use in your classroom? ? Mark the right box(es) with "x".

Levels	**Types**	
Higher-cognitive	Creating	[ ]
	Evaluating	[ ]
	Analysing	[ ]
Lower- cognitive	Applying	[ ]
	Understanding	[ ]
	Remembering	[ ]

25. Have you ever encountered the term '**critical thinking**' ? Yes [ ] No [ ]
If yes, … **A)** what does it means? [ ]

B) how can you apply it in your teaching? [ ]

26. Would you describe your students as critical thinkers? Yes[ ] Somewhat[ ] No[ ]

Why? [ ]

27. Out of the following aspects, which ones do you accentuate the most in your lessons? Mark the right box(es) with "x".

Analyzing and determining the relationships of parts to a whole;	[ ]
Making associations between information and opinions;	[ ]
Reasoning using various processes suitable to circumstances;	[ ]
Questioning and evaluating so as to form judgments and make decisions;	[ ]
Engaging in self-reflection of experiences and processes;	[ ]
Interpreting alternative viewpoints and identifying their strengths;	[ ]
Understanding data and making conclusions based on the best analysis;	[ ]
Clarifying viewpoints by asking important questions which lead to improved solutions;	[ ]
Solving problems using conventional and innovative approaches.	[ ]

28. As a teacher, what do you see as your role or contribution to the development of students' critical thinking? Please support your answer.
[ ]

29. What might hinder the development of CT skills among students?

[ ]

30. What hinders the application of CT in your classroom? Mark the box(es) next to hindering factor(s) with "x".

Factors	
Language incompetence	[ ]
Over-crowded classes	[ ]
Programme Completion / Lack of time	[ ]
Learning Styles	[ ]
Self-efficacy	[ ]
Learners' discouragement/disengagement	[ ]

31. What do you suggest to overcome the above-mentioned issues (hindering factors)?

[ ]

Your opinion on project work & project-based learning

32. Have you ever encountered the term '**Project-Based Learning**' (PBL)? Yes [ ] No[ ]
If yes,… **A)** How did you get information on project-based learning? Mark the right box(es) with "x".

Training workshops [ ] Internet [ ] Books [ ] University courses [ ]

B) what do you think it means? [ ]

33. Have you ever been trained on PBL in workshops by your inspector(s)? Yes[ ] No[ ]
If yes, what changes has it brought to your teaching?
[ ]

34. How much would an easy-to-follow guideline help you to adopt a project-based learning approach?
very much[ ] very little [ ]

Why? [ ]

35. How much would a professional development program help you to adopt a project-based learning approach?

Very much[ ] very little[ ]

Why? [ ]

36. What is your definition of a project?
[ ]

37. Have you ever assigned any project work to your students? Yes [ ] No [ ]
If no, what are the obstacles? [ ]

If yes, how many projects do you assign to your students a year? Mark the right box (es) with "x".

Levels	One	Two	Three	Four	More than four
1 AS	[ ]	[ ]	[ ]	[ ]	[ ]
2 AS	[ ]	[ ]	[ ]	[ ]	[ ]
3 AS	[ ]	[ ]	[ ]	[ ]	[ ]

38. Before assigning a project to your students,…

A. do you provide them with guidelines about the project process preparation steps? Yes[ ] No [ ]

B. do you make them aware of the drawbacks of copyright violation? Yes [ ] No [ ]

C. do you advise them to collect information for their projects through…

	Yes	No
face to face interviews?	[ ]	[ ]
questionnaires?	[ ]	[ ]
field visits?	[ ]	[ ]
internet?	[ ]	[ ]
books?	[ ]	[ ]
newspapers?	[ ]	[ ]

D. do you provide learners with the following project management tools?

	Yes	No
Project team rules	[ ]	[ ]
Project team contracts	[ ]	[ ]
Project management log / team tasks	[ ]	[ ]

39. How many project topics do suggest to them for each unit/theme?

One	Two	Three	Four	More than four
[ ]	[ ]	[ ]	[ ]	[ ]

40. Do you encourage Voice and Choice? (Encouraging students to make choices on which topic(s) they will work on, how to work, how to use their time, etc.) Yes [ ] No [ ]

41. Do you provide them with project topics that have real-world/community connections?
Yes [ ] Somewhat [ ] No [ ]

42. Are the suggested project topics problem-based? Yes [ ] No [ ]

43. Before revision and feedback, do you inform them about the project evaluation criteria? Yes [ ] No [ ]

44. Before revision and feedback, do you provide them with the following tools?

	Yes	No
Project assessment checklist	[ ]	[ ]
Self-reflection questionnaire	[ ]	[ ]
Audience questionnaire	[ ]	[ ]

If you do, explain why briefly. [ ]

45. After the projects presentations,…

A. what do you assess?

individual student [ ] the group [ ] the product [ ] all [ ]

If you tick all, classify them according to the importance you give to each element when you evaluate. Write 1, 2 and 3 inside the brackets.

individual student [ ] the group [ ] the product [ ]

B. what do you focus on **more** when you assess the students or/and the product? Mark **only one** box with "x".

language [ ] fluency [ ] originality [ ] attitudes [ ]

C. how do you assess the students or/and the product? [ ]

Thank you so much for your time and collaboration!

Appendix B: Questionnaire for Learners

Questionnaire for Learners

Directions:

- Please write (**X**) to mark your answer in the appropriate space [ ] next to the yes/no questions.
- Please use the space between the square brackets [ ] to write your text/answer.

Wilaya: Mostaganem [ ] Oran [ ] Tlemcen [ ]

Stream: Sciences [ ] LPH [ ] Math [ ] TM [ ] GE [ ] FL [ ]

---

1. Do you like to learn English? Yes[ ] No[ ]

2. Do you think that English will be useful to you in the future? Yes[ ] No[ ]
If yes, Explain how.

[ ]

3. According to you, why do you need to learn English? Choose ONE item and mark the right box with "**X**".

To communicate with people around the world	[ ]
To use it when I travel abroad	[ ]
Because I need it for my studies	[ ]
I feel good when I speak it	[ ]

4. Are you interested in going further in learning English? Yes [ ] No[ ]

5. Are you interested in doing projects in English? Yes [ ] No[ ]

6. Do you do projects in the English class? Yes [ ] No[ ]

If yes, how many?

One [ ] Two [ ] Three [ ] More than three [ ]

7. Are you motivated to do projects? Yes [ ] No[ ]
If no, why**?**

[ ]

8. How do you find projects in English?

[ ]

9. Do you think that projects will help you improve (develop) your English? Yes [ ] No[ ]

10. Do you think that you may face obstacles (problems) while doing projects? Yes [ ] No [ ]
If yes, what are they?

[ ]

11. Do you have access to the Internet in your high school? Yes[ ] No[ ]

12. According to you, is the role of the teacher important to motivate you to do projects? Yes [ ] No [ ]

13. In your opinion, what is the resource information that would help you prepare projects?

Internet [ ] Books [ ]

Why?

[ ]

14. In the English class, do you prefer to study more often in groups, pairs or individually? Yes[ ] No[ ]

Why?

[ ]

15. If you were asked to do projects, how would you prefer to do them?

Individually[ ] Collaboratively (in groups or pairs) [ ]

Why?

[ ]

16. Do you think that you will learn anything when you do projects? Yes [ ] No [ ]

If yes, what do you learn?

[ ]

17. Do think that you learn most from your projects or from the projects of your classmates?

My Projects[ ] My Classmates' Projects[ ]

Why?

[ ]

18. In your opinion, who should choose the topic of the project?

You [ ] Your teacher [ ] You and the teacher [ ]

Why?

[ ]

19. What would you do if you did not like the topic of the project your group was asked to do?

I ask the teacher to change the topic [ ] I accept and I do it even if I am not satisfied [ ]

I try to change the group [ ]

20. Do you think that you could take part in evaluating your projects or it is the duty of the teacher?

I can evaluate my projects [ ] The teacher evaluates the projects[ ]

Appendix C: Pre-Post Test

33. Galileo's Vision
by David White

A [1]It was a clear night in 1610 when Galileo Galilei looked through his telescope and saw the four closest moons of Jupiter. [2]They were only dots in the sky, but they were there.

B [3]It was quite a discovery. [4]In fact, the moons Galileo saw were the first moons other than our own moon that anyone had ever seen.

C [5]Now, Galileo didn't invent the telescope. [6]Hans Lippershey of Holland did in 1608. [7]He designed it so people could look at things far away. [8]But Galileo was the first to use a telescope to look at stars and planets.

D [9]Using the telescope, Galileo also discovered that our moon was not the perfect, mysterious sphere everyone thought it was. [10]He proved that the moon was filled with craters. [11]He also proved that the light that seemed to be coming from the moon was actually a reflection of light coming from the sun.

E [12]Galileo was also the first scientist to prove a theory by testing it and recording results. [13]Until that time, scientists would prove their theories by making arguments without giving evidence.

F [14]Galileo was the first to provide visual evidence in support of the theory that Earth revolves around the sun. [15]A man named Copernicus of Poland had written in 1543 that Earth was not the center of the universe. [16]He had said that the sun was the center of what we call the solar system and that Earth circled the sun. [17]Not many people believed

him. [18]Teachings until that time had placed Earth firmly at the center of the universe, with everything else revolving around it. [19]Galileo, night after night, saw the moons of Jupiter at different points in the sky. [20]It was clear that they were circling Jupiter, not Earth. [21]What Galileo saw helped prove Copernicus's theory.

G [22]Astronomy has come a long way since 1610. [23]We now know that Jupiter has at least 16 moons. [24]We know that our own solar system has nine planets. [25]We know that seven of those planets have moons. [26]We know that the universe contains other solar systems like ours. [27]We have telescopes searching the night sky for signs of life. [28]Thousands of people now do what one man started on a hill in Italy almost 400 years ago.

DIRECTIONS: Choose or write the best answer to each of the following questions using the evidence presented in the passage. When required, list specific sentence numbers or paragraph letters from the story to support your answer.

1. Which of these best explains why people before Galileo hadn't seen moons around Jupiter?
- **A.** They hadn't looked in the right place.
- **B.** They hadn't turned the telescope toward the night sky.
- **C.** They thought Jupiter didn't have moons.
- **D.** They thought Earth was the center of the universe.

Give the number of the sentence that best supports your answer. ____

2. Which of these words best describes the process that Galileo introduced to scientific theory?
- **A.** visualization
- **B.** determination
- **C.** argumentation
- **D.** experimentation

Give the number of the sentence that best supports your answer. ____

3. The author's purpose in writing this passage was probably
- **A.** to discuss modern astronomy.
- **B.** to show how to use a telescope.
- **C.** to prove Galileo's theories about the universe.
- **D.** to show Galileo's contributions to science.

4. Scientists before Galileo proved theories by making arguments. This kind of proof can best be described as
- **A.** theoretical.
- **B.** historical.
- **C.** natural.
- **D.** technical.

5. Compare the two scientific theories described in paragraph F.

_____

_____

_____

_____

_____

_____

6. Explain one way that Galileo changed the way people thought about the Moon.

_____

_____

_____

_____

_____

_____

Give the letter of the paragraph that best supports your answer. ____

7. Which of these statements about the passage is an opinion?
- **A.** The moon is filled with craters.
- **B.** Galileo put the telescope to good use.
- **C.** Galileo discovered four moons of Jupiter.
- **D.** People didn't believe Copernicus's theory at first.

33. Galileo's Vision by David White

1. Cause/effect
B. They hadn't turned the telescope toward the night sky.

1 best evidence sentence: **8**

[8]But Galileo was the first to use a telescope to look at stars and planets.

2. Conclusion
D. experimentation

1 best evidence sentence: **12**

[12]Galileo was also the first scientist to prove a theory by testing it and recording results.

3. Author's purpose
D. to show Galileo's contributions to science.

4. Inference
A. theoretical.
B. historical.
C. natural.
D. technical.

Sentences 12 and 13 says Galileo was the first scientist to prove theories using evidence. Scientists before him, then, must have relied on untested theories. There is no evidence for B, C, or D.

5. Compare/contrast

The old theory was that Earth was the center of the universe and that planets and moons circled it. Copernicus's theory said the Sun was the center of our solar system and that Earth circled the Sun.

6. Reading for detail

(Accept either)

1. Before Galileo, people thought the Moon was perfectly smooth and round and that it gave off its own light.
2. Galileo proved that the Moon had craters and was not its own source of light.

1 best evidence paragraph: **D**

7. Fact/opinion
B. Galileo put the telescope to good use.

B contains the word "good," which is a value judgment—an indicator of an opinion. A, C, and D are facts.

Appendix D: Projects Distribution (3AS Classes)

Projets	Maths/Tech-Maths/Sc Exp/Gestion-Economie	Philo/Litt./Langues Etrangères
1. Ancient Civilisations	*	**
2. Ethics in Business	**	**
3. Education in the World	*	**
4. Advertising, Consumers and Safety	**	*
5. Astronomy and the Solar System	**	*
6. Feelings and Emotions	**	**

Appendix E: Projects Structure (3AS Syllabus)

PROJECT 2	**The goal of this project is to demonstrate awareness of and ability to deal with ethics in business**
Theme (2)	**Ethics in business : fighting fraud and corruption**
Project outcomes *(situations d'apprentissage)*	**Pupils will:** • design materials related to exports / imports rates and currency exchange rates • draw a graphic organizer of exports and imports • write a charter of ethics in business • have a class debate on the importance of ethics in business
Learners' outcomes *(situations d'intégration)*	**Pupils will:** • identify and define the concept of ethics in business • be made conscious of the negative effects of fraud • be aware that honesty in business is a sign of active/good citizenship • identify and define the concept of ethics in other professional contexts (teaching, medicine, law, etc.)
Language outcomes	SEE TABLE BELOW
Skills and strategy outcomes *(savoir-faire)*	**Pupils will:** • collect data/ organize data/evaluate data • develop organizational skills • be involved in critical thinking/evaluate/judge • draw conclusions/use logic • address an audience and get feedback from them
Intercultural outcomes *(savoir-être)*	**Pupils will:** - understand and seize the importance of fighting fraud, money laundering and corruption at national and international levels - be made aware of international cooperation against fraud
Technology skills	www.web-miner.com/busethics.htlm www.enterweb.org

PROJECT 2	Language outcomes			
Theme (2)	**Functions**	**Grammatical structures**	**Vocabulary building**	**Pronunciation/ spelling**
Ethics in business	Describing Advising Expressing obligation Expressing cause Expressing result Making hypotheses Expressing opinion Expressing wishes and regrets	• **Present simple** • **Present continuous** • **Passive** • Should/ought to/ could/had better + infinitive • Must/have to / musn't • Due to /for/as/since • **So+adj**+that - **Such**+adj+ **noun** + that • **So / as a result / consequently / thus** • **As long as / provided that** • **If** type 2 conditional statements • I think / I believe / For me / In my opinon + statement • I wish / if only • It's high time + subject + past simple	• **Form nouns :** honest / honesty - responsible / responsibility • **Form opposites (verbs):** Approve / disapprove Agree /disagree • **Form opposites (adj) :** Legal / illegal Honest/ dishonest • **Observe nouns ending in** « **ics** » : - Ethics **is** / Ethics **are** - Ethics = /ˈeθ.ɪks / (Stress on first syllable) - Linguistics = / lɪŋˈgwɪs.tɪks / (Stress on penultimate syllable)	• Shift of stress • Syllable stress

Appendix F: Projects Distribution (2AS Classes)

Projets	Maths/Tech-Maths/Sc Exp/Gest-Eco/	Philo/Litt./Langues Etrang./
1. Citizenship	+ +	+ +
2. Peace and conflict resolution	+ +	+ +
3. Diversity	+	+ +
4. Famous people…	+	+ +
5. Technology and innovation	+ +	+
6. Poverty and world resources	+ +	+ +
7. Disasters and safety	+ +	+ +
8. Management and efficiency	+ +	+

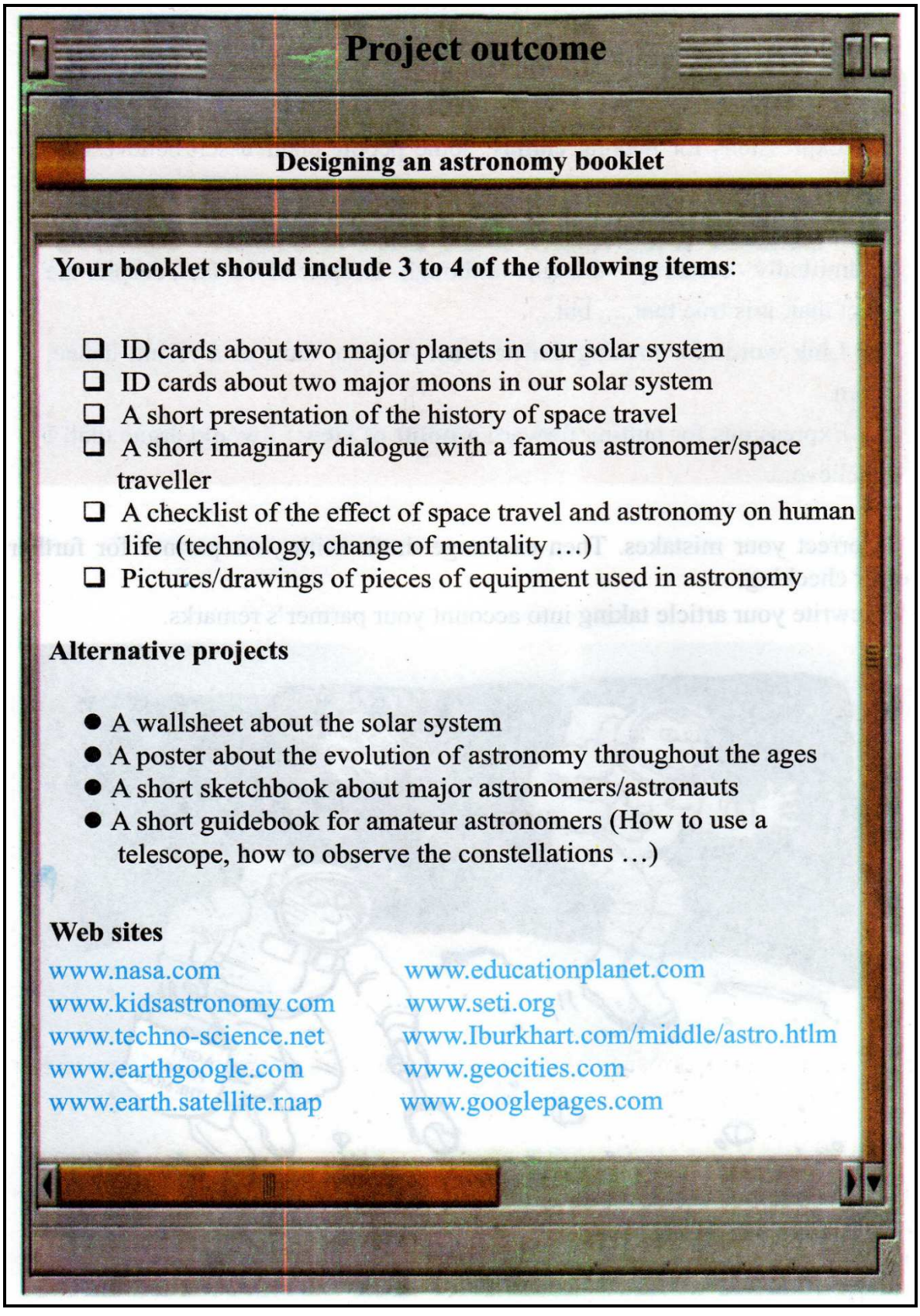
Appendix G: Classroom Observation Checklist

CLASSROOM OBSERVATION CHECKLIST
CRITICAL THINKING SKILLS

Name of the teacher: .....
School: ..... Class Observed: ..... Date: .....

Teacher behaviors that encourage students' critical thinking in the classroom	Always	Sometimes	Rarely	Not Observed
I. Challenging Students' Thinking **1.** Asks questions that stimulate higher-order thinking skills of blooms taxonomy.(analysis-synthesis-evaluation) **2. Analysis:** – Teacher asks students to clarify their answers. – Teacher persuades students to answer other classmates' questions and ask back other possible provoking questions. – Teacher asks students to elaborate, illustrate what they mean and give examples and think about the issue from a different perspective. – Teacher uses cognitive verbs such as: classify- compare- categorize-derive. **3. Synthesis:** – Teacher promotes students to use prior knowledge to create new situations. – Teacher requires students to make suppositions by raising questions like "suppose and what if". – Teacher asks students to be precise and give more details. – Teacher invites students to draw conclusions and assumptions. – Teacher uses cognitive verbs such as: Contrast– produce – propose- improve– design. **4. Evaluation:** – Teacher persuades students to reflect on their answers and point of views. – Teacher asks students to give opinions by giving a reasonable evidence to support that opinion. – Teacher asks students to compare and contrast information. – Teacher uses cognitive verbs such as: Judge- verify – justify- assess- recommend. **II. Critical Thinking Learning Environment** – Teacher uses group and pair work activities. – Teacher tolerates students' mistakes. – Teacher uses ICTs and visual aids to improve cognitive abilities. – Teacher encourages learner-centeredness. – Teacher provides sufficient guidance. – Teacher is so available. – Teacher initiates a climate in which thinking is fully focused. – Teacher strengthens students to answer open ended questions. – Teacher is a guide and a facilitator.				

Appendix H: Unit Five Project Outcome



Appendix I: Experimental Teaching Assignment

RESEARCH AND REPORT

Choose one of the following assignments:

P
ASSESSING

① Make a short ID card of any one of the historic celebrities below for a **'who's who ?' class competition**. Emphasize their respective contributions to astronomy.

- *Ptolemy*
- *Caliph Al Ma'mun*
- *Al-Battani*
- *Razez*
- *Copernicus*
- *Galileo*
- *Hubble*
- *Brahe*

Galileo Galilei,
1564 - 1642

② Carry out a research into **solar and lunar eclipses** for a classroom presentation. Compare and contrast them using graphic representations.

Johannes Kepler,
1571 - 1630

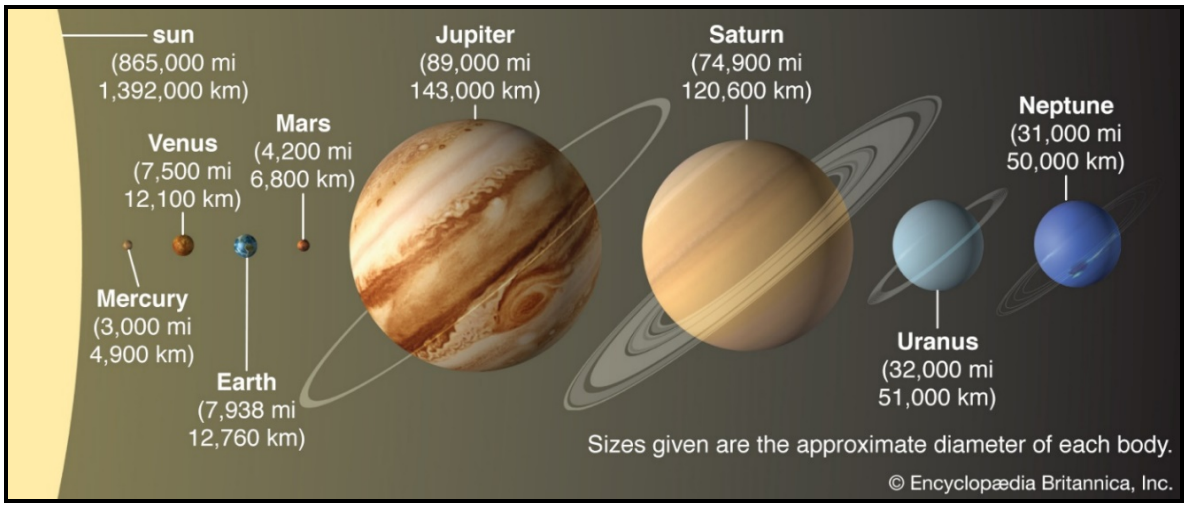
③ Find the origin of the terms in italics below in an encyclopedia. Add four to five words related to astronomy, and belonging to the same origin. Explain what the words mean to your classmates.

nadir – zenith - almanac

④ Carry out a research into the myths that your ancestors told about the heavens, or the myths you have read about in other cultures. Identify the natural phenomena that the myths you have discovered explain. Present your findings to the class.

Ptolemy (Claudius Ptolemaeus) c. 100-170 A.D Greek astronomer and geographer. In the picture, Ptolemy is using a quadrant to observe the Moon. He is being watched by Urania, the muse of astronomy.

Appendix J: Learners' Sample Project Data Collection: solar system



Appendix K: The Syllabus and the *New Prospects* Textbook Checklist

Item	Yes	No
1. Third Year Syllabus:		
• Is the project work enhanced in the third-year syllabus?		
• Does the syllabus provide instructions on the roles of both the instructor and learners when dealing with the project work?		
• Does the syllabus favour critical thinking/problem-solving orientation?		
• Does the syllabus provide instructions on how to assess the project work?		
2. *New prospects* Textbook:		
• Is the project work enhanced in the textbook and on which type of projects does it focus?		
• Does the textbook provide instructions to help learners deal with the project?		
• Does the textbook integrate critical thinking and problem-solving activities?		
• Does the textbook focus on autonomy or collaboration?		
• Does the textbook consider the project work as a process or a final product?		
• Do the instructed projects favour authenticity/ real-life themes?		

Appendix L: *New Prospects* Textbook Tasks

After reading

① With your partner, compare your answers to the questions in the **As-you-read** rubric on the previous page. Then discuss the questions on the next page.

A. Which questions (in the **As-you read** rubric) are reference questions ? Why ?
B. Which questions are inference questions ? Why ?
C. Which type of questions are easier to answer ? Why ?
D. How did you proceed to find answers to the inference questions ?

② Have a look at the coping box below. Then discuss the questions that follow.

Coping

- Texts, especially literary texts, like the story you have just read, contain statements of facts and statements of opinion. E.g.
  Fact : James Thurber is a 20th-century American writer.
  Opinion : (He believes that) traditional fairy tales can be adapted to modern times.
- Opinions are often introduced by verbs such as **believe, think, suppose,** etc.
- Sometimes you have to work out/infer whether the statement is a fact or an opinion.
- After reading a text, you must also respond to it. Ask yourself some questions :
  - How are the opinions expressed in the text ?
  - Do I agree or disagree with them ? Why ?
  - Do I like this text or not ? Why ?
  - What lessons for life (if any) does the text contain ?

A. How does James Thurber begin and end his story ? What type of stories start and end like this ?
B. In what ways is this story different from fairy tales in characters, themes, language, etc. ?
C. Do you think the author prefers the husband to the wife ? Argue your point.
D. Do you agree with the author's opinion about modern tales ? Why (not) ?
E. Do you like this story ? What makes you smile or laugh ? Why ?
F. What adjectives would you associate with the mood of this story ? Tick (✓) in the relevant box.

tragic ☐ fantastic ☐ serious ☐ comic ☐ realistic ☐ hilarious ☐

③ Study the following interpretations of the story (that you have read above). Then choose the **one** you think is the best. Write 5 to 6 lines to justify your choice by giving evidence from the story.

Start like this:
In my opinion/ I think that/ ____. To begin with, _____

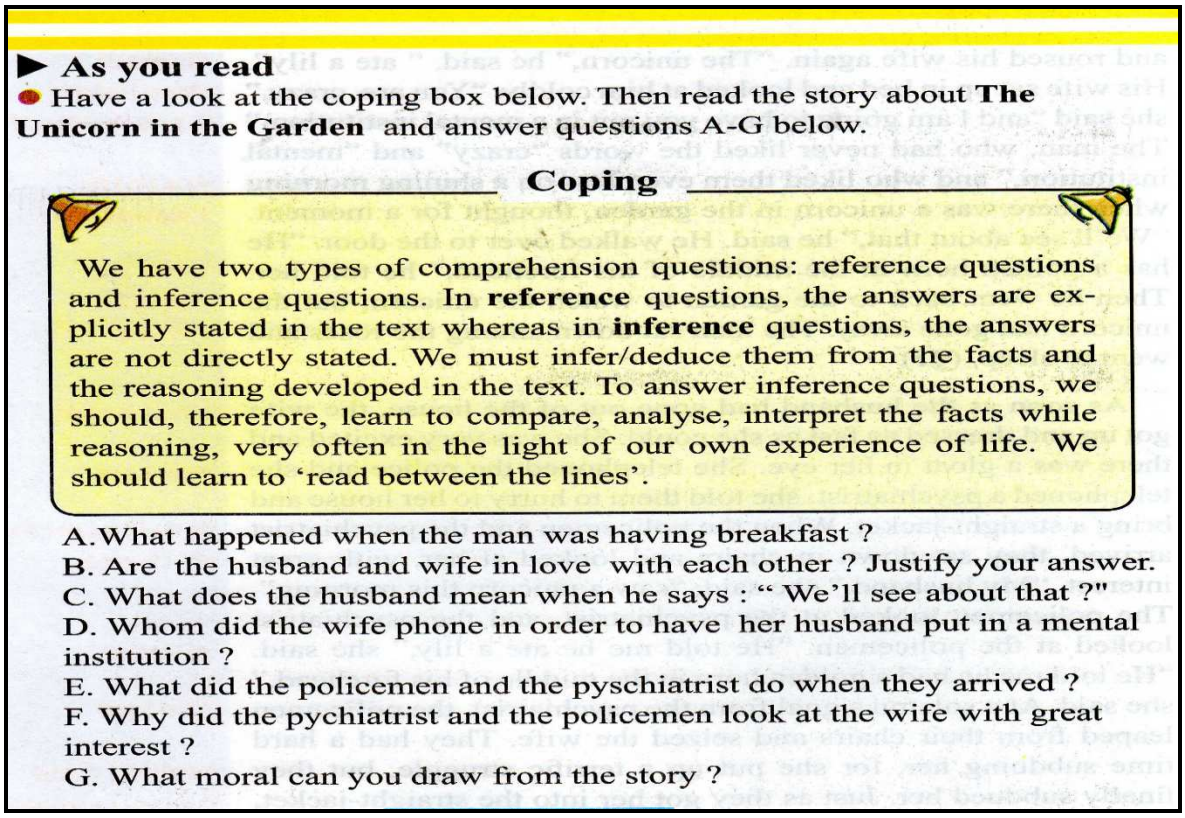
A. The man tricked his wife into believing he was insane.

B. The man was dreaming and sleepwalking. After he woke up he remembered nothing of what happened.

C. The wife was mad and imagined the whole incident.

D. The story is just a bad dream recounted by the wife to her husband.

Appendix M: *As You Read* and *Around the Text* Rubrics



► As you read

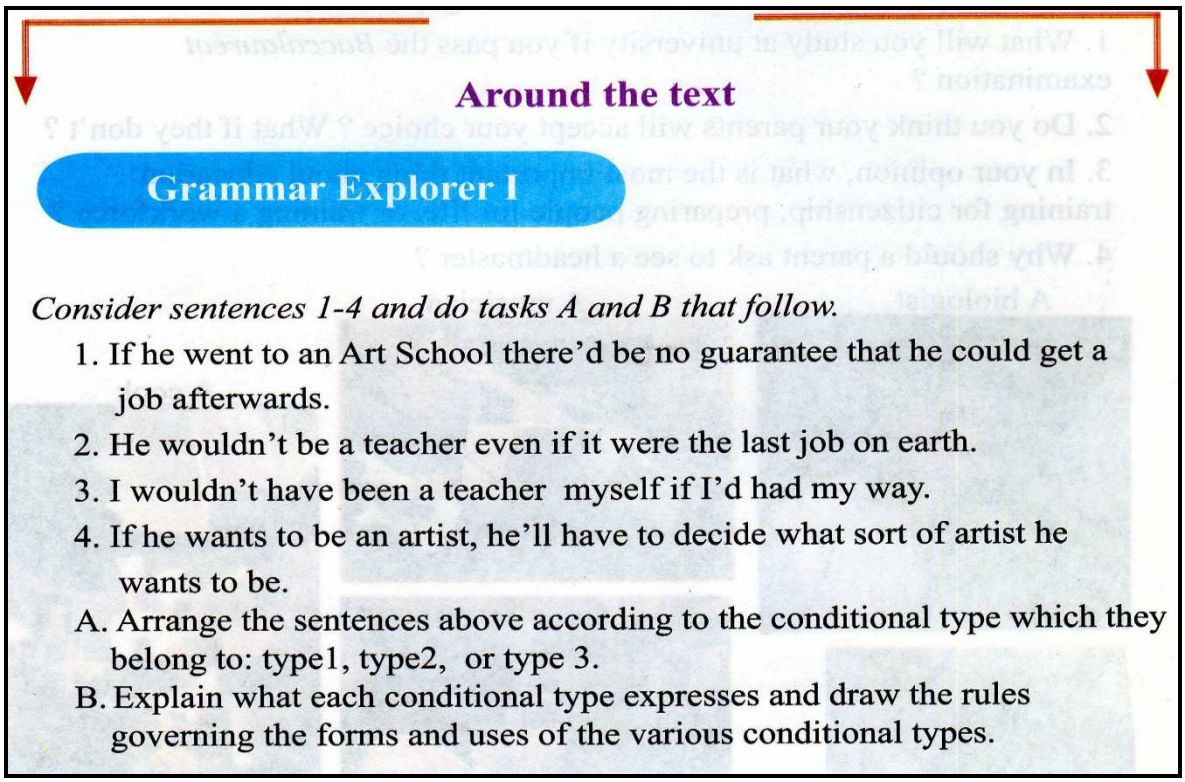
Have a look at the coping box below. Then read the story about **The Unicorn in the Garden** and answer questions A-G below.

Coping

We have two types of comprehension questions: reference questions and inference questions. In **reference** questions, the answers are explicitly stated in the text whereas in **inference** questions, the answers are not directly stated. We must infer/deduce them from the facts and the reasoning developed in the text. To answer inference questions, we should, therefore, learn to compare, analyse, interpret the facts while reasoning, very often in the light of our own experience of life. We should learn to 'read between the lines'.

A. What happened when the man was having breakfast ?
B. Are the husband and wife in love with each other ? Justify your answer.
C. What does the husband mean when he says : " We'll see about that ?"
D. Whom did the wife phone in order to have her husband put in a mental institution ?
E. What did the policemen and the pyschiatrist do when they arrived ?
F. Why did the pychiatrist and the policemen look at the wife with great interest ?
G. What moral can you draw from the story ?

Appendix N: *Grammar Explorer 1*



Around the text

Grammar Explorer I

Consider sentences 1-4 and do tasks A and B that follow.

1. If he went to an Art School there'd be no guarantee that he could get a job afterwards.
2. He wouldn't be a teacher even if it were the last job on earth.
3. I wouldn't have been a teacher myself if I'd had my way.
4. If he wants to be an artist, he'll have to decide what sort of artist he wants to be.

A. Arrange the sentences above according to the conditional type which they belong to: type1, type2, or type 3.
B. Explain what each conditional type expresses and draw the rules governing the forms and uses of the various conditional types.

Appendix O: Unit Two Project Outcome

Project outcome

Writing a charter of ethics

Ethical standards are an important dimension in all of the professions listed below. See Research and Report on page 60.

- Accountancy
- Law
- Architecture
- Medicine
- Banking
- Plastic surgery
- Business
- Teaching
- Journalism
- Sports
- Agriculture
- Scientific research

Write a charter of ethics in relation to three of the above professions. Your charter of ethics should include :

A. a reminder of the social, economic, moral prejudices that the neglect of ethics might cause to the professions and their clients. Give data/statistics.

B. a short interview about the importance of ethics in the professions with representatives of professional associations.

C. a short article that reports unethical behaviour in the professions and how the law deals with them. (See Research and Report on page 60.)

D. a code of ethics, i.e. a set of moral rules, for each of the selected professions.

Alternative projects

- A report about Internet Piracy/Cybercriminality.
- A report about counterfeits currently marketed in your country.

Web sites

www.kindbook.com www.thehappinessclub.com www.joeant.com
www.saferchild.com www.carolynjabs.com
www.careersandoccupations.com www.theworldchallenge.co.uk

Appendix P: Unit Two First Page

Unit two : ILL-GOTTEN GAINS NEVER PROSPER.

Project outcome

Writing a charter of ethics

For further information, have a look at page 71.

TRANSPARENCY INTERNATIONAL
the global coalition against corruption

ISO

- **International Standards Organisation**
- **Label conferred upon goods/services that comply with ISO**

- A non-gouvernmental organisation

Appendix Q: Unit Two Assessment Page

ASSESSMENT

Language assessment

① Show what you can really do with the language items checklisted in the learning log below by using them in illustrative sentences of your own.

I can	very well	fairly well	not well
A. use the present continuous passive in descriptions.		✓	
B. give advice to someone using modals **ought to/ should**, **had better** or their **negatives**.			
C. express obligation and prohibition using **must** or its **negative** form.			
D. express result using **so+adjective+that** and **such+adjective+noun +that**.			
E. express cause and effect using **because**, **for**, **as**, **since**, **as a result**, **consequently**, etc.			
F. express hypothesis/condition using **provided/ providing that**, **as long as**.			
G. ask for and give opinion.			
H. express wish and regret using **I wish**, **it's high time+ simple past**.			
I. form opposites with prefixes **dis-**, **il-**, **im-**, **in-** etc.			
J. form nouns by adding suffix **-ty** to adjectives.			
K. recognize and use stress shift in words having the same root. E.g. economy → economic → economical.			
L. pronounce words ending in **-ics** correctly.			

② Put a tick (✓) next to each item in the learning log to indicate what you think is your level of performance. Then hand a copy of the learning log with your examples on a separate sheet to your teacher.

Skills and strategies assessment

Take the test that your teacher will assign to you on one of the texts in the **Resources Portfolio** so as to check your progress in terms of skills and strategies.

Appendix R: 21st Century Skills Planning Template

Collaboration		**Creativity**		**Communication**		**Critical Thinking**	
Date		**Grade**		**Subject/Topic**			
Learning Outcomes				**Success Criteria**			
Lesson Sections				**21st-century skills to Be Enhanced**			
Starter Activity							
Whole class							
Groups							
Individual							
Plenary/Reflection							
E-Learning/English Language Learner							
Assessment							
Resources							
Homework							

Appendix S: KWL Chart

Training Module: ……..		
What I know *(What I already know about the topic)*	**What I want to know** *(What I hope to learn and the questions I have)*	**What I have learnt** *(What I have learnt; Possible answers to my questions; New things I had not thought about)*
Actions I need to put in place.		

Résumé

Les institutions éducatives du monde entier sont actuellement concernées par l'introduction de la pensée critique et de la pédagogie de projet dans l'éducation. Le système éducatif algérien n'est pas exempt de cette convoitise globale. La preuve, dans ce cas, est clairement énoncée dans le programme d'anglais de la troisième année secondaire. Ce dernier stipule que l'enseignement de l'anglais vise non seulement à acquérir des compétences linguistiques et communicatives, mais aussi à *développer un esprit critique* (MNE, p.3). La présente étude est une enquête représentative qui examine l'étendue de la mise en œuvre de la pédagogie du projet pour améliorer la pensée critique dans les classes d'anglais de la troisième année secondaire puisque ces élèves représentent le dernier profile de sortie de l'enseignement moyen et secondaire que le ministère de l'éducation requiert. Elle explore aussi le rôle du matériel pédagogique, à savoir le programme, le document d'accompagnement et le manuel scolaire dans développement de la pensée critique. Le dernier objectif de cette étude est d'investiguer sur l'utilisation des stratégies d'enseignement en classe telles que le travail de groupe, les jeux de rôle, la résolution de problèmes, les casse-tête et d'autres tâches d'apprentissage actif qui permettent d'accroitre la participation des apprenants à des discussions de haut niveau et de développer ainsi leur capacité de réflexion critique. L'étude a fait appel à une combinaison de méthodes de recherche quantitatives et qualitatives dans lesquelles divers outils de collecte de données ont été utilisés à savoir des questionnaires pour les enseignants et les apprenants pour identifier leurs attitudes vis-à-vis de la pensée critique et du travail de projet ; des sessions d'observation en classe ont été organisées pour observer les pratiques en classe ; une expérimentation auprès des élèves a été aussi menée en classe pour identifier l'impact du travail de projet sur la promotion de la pensée critique, et une analyse du manuel et du programme d'anglais de troisième année secondaire a été effectuée pour déterminer s'ils incorporaient les principes fondamentaux de la pédagogie du projet et de la pensée d'ordre supérieur, c'est-à-dire la pensée critique. L'analyse des données des outils susmentionnés a révélé que les enseignants sont raisonnablement bien informés, mais ils manquent de formation professionnelle ; les apprenants sont intéressés mais pas motivés à faire des projets, en raison de pratiques de classe inadéquates telles que le manque de stratégies d'apprentissage actif et la prédominance de la pédagogie centrée sur l'enseignant ; le travail de projet peut évidemment favoriser et améliorer la pensée critique, et le matériel didactique, à savoir le programme et le manuel, sont essentiellement basés sur des projets et s'ils sont utilisés de manière méthodique, ils aideront les enseignants à mettre en œuvre l'approche d'apprentissage par projet et amélioreront ainsi la pensée critique des apprenants. Pour conclure, cette étude est susceptible d'être utile aux enseignants et aux décideurs, car elle met en évidence non seulement les obstacles qui affectent le développement de la pensée critique des apprenants mais aussi l'aide que cette pensée apporte aux apprenants pour réussir à l'école et surtout dans la vie.

ملخص

ان المؤسسات التعليمية في جميع أنحاء العالم مهتمة حاليًا بإدماج التفكير النقدي والتعلُّم القائم على المشاريع في أنظمتها التعليمية. فالنظام التعليمي الجزائري ليس بمنأى عن هذا الاهتمام العالمي. والدليل في هذه الحالة مذكور بوضوح في منهاج اللغة الإنجليزية للسنة الثالثة ثانوي. بحيث ينص هذا الأخير على أن تدريس اللغة الإنجليزية لا يهدف إلى اكتساب الكفاءات اللغوية والتواصلية فقط ولكن أيضًا الى تنمية التفكير النقدي. ففي هذا السياق تهدف هذه الأطروحة الى الاستفسار عن مدى تنفيذ التعلم القائم على المشاريع لتعزيز التفكير النقدي في اقسام السنة الثالثة ثانوي للغة الإنجليزية لكونهم يمثلون ملمح التخرج الأخير للتعليم المتوسط والثانوي المنشود من طرف وزارة التربية. وتستكشف هذه الاخيرة ايضا دور الوسائل التعليمية كالمنهاج الدراسي والوثيقة المصاحبة له والكتاب المدرسي في تنمية التفكير النقدي. ينصب التركيز الاخير لهذه الأطروحة على ما إذا كانت الممارسات الصفية الحالية تتضمن استراتيجيات التعلم النشط مثل العمل الجماعي، ولعب الأدوار، وحل المشكلات، وألعاب التفكير وغيرها من الأنشطة الأخرى التي تزيد من مشاركة المتعلمين تدفعهم الى الانغماس في مناقشات عالية الجودة. ان كان كذلك فهذا سيطور مهارات التفكير النقدي لديهم. تضمنت هذه الدراسة أيضا مجموعة من طرق البحث الكمية والنوعية التي استخدمت فيها مجموعة متنوعة من أدوات جمع البيانات بحيث تم استخدام استبيانات لكل من الاساتذة والمتعلمين لتحديد مواقفهم تجاه التفكير النقدي والعمل بالمشاريع. تم ايضا تنظيم حصص للملاحظة الصفية لأخذ فكرة عن ممارسات الأساتذة المعمول بها في هذه الاخيرة. تم أيضا تصميم تجربة نموذجية لتحديد تأثير العمل بالمشاريع في تعزيز التفكير النقدي. بعد إجراء تحليل لكتاب ومنهاج اللغة الإنجليزية للسنة الثالثة ثانوي لمعرفة ما إذا كانوا يتضمنون المبادئ الأساسية للتعلُّم القائم على المشاريع وعلى التفكير النقدي أيضا كشف تحليل البيانات للأدوات المذكورة أعلاه أن الاساتذة على دراية معقولة بعلم البيداغوجيا لكنهم يفتقرون إلى التدريب المهني المتخصص. اظهرت البيانات أيضا ان المتعلمين يهتمون بالعمل بالمشاريع ولكنهم يفتقدون للفرص للقيام بها وهذا بسبب الممارسات الصفية الغير ملائمة مثل الافتقار إلى استراتيجيات التعلم النشط وهيمنة منهجية التعليم المرتكز على المعلم في الممارسات الصفية. ومن جهة أخرى أظهرت الدراسة ايضا أن العمل بالمشروع يمكن أن يشجع ويعزز التفكير النقدي زيادة عن ذلك فان الموارد ألتعليمية أي المنهاج الدراسي والكتاب المدرسي يعتمدان بشكل كبير على منهجية التدريس بالمشاريع فان تم استخدامهم بشكل منهجي، فإنهم سيساعدون الاساتذة على تنفيذ نهج التعلم القائم على المشاريع وبالتالي يتم تعزيز التفكير النقدي لدى المتعلمين. وختامًا لدراستنا فمن المرجح أن تكون هذه الاخيرة مفيدة للأساتذة وصانعي السياسات لأنها تسلط الضوء على العوائق التي تقف امام تطوير التفكير النقدي عند المتعلمين وعلى أهمية هذا الاخير في مساعدة المتعلمين على النجاح في المدرسة والأهم من ذلك في الحياة كلها.