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Computer Assisted Language Learning at Djilali Liabes
University: Attitudes and Hindrances

This thesis submitted in fulfilment of the requirement for a degree of Doctorate in English language didactics.

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DEDICATIONS

I dedicate this humble work to my beloved mother.

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ABSTRACT

The stark and unjustifiable absence of educational technologies from English language department at Djilali Liabes University is a problem that has persisted for too long without any real endeavours taken to solve it. The current work aims at tackling this issue through examining the status of Computer Assisted Language Learning (CALL) at national level, mapping attitudes of teachers and students at English language department towards CALL, pinpointing the hurdles that impede CALL normalization at the level of the same department, and putting forward a set of suggestions that should facilitate its integration and eventual normalization. The current thesis encompasses four chapters, chapter one describes the state of CALL at the national level and refers to the current work's research procedures and design, chapter two provides theoretical background for the study, chapter three entails analysis and discussion of the findings, and chapter four puts forward a set of suggestions and recommendations regarding the identified issues. The present work is a cross-sectional descriptive research that combines qualitative and quantitative research methodologies, as it employs questionnaires, open-ended interviews, and documentary research that led to a number of findings. First, Algerian education still lags behind in terms of incorporating ICTs as all the made efforts are hampered by the lack of a long-term strategy and absence of cogent planning. Second, teachers' attitudes towards CALL proved more positive than those of students, and they are more likely to adopt CALL if circumstances are favourable. Third, CALL normalization at the level of English language department is hampered by tight budget, lack of basic facilities, absence of ICT training, students' negative attitudes and reluctance, and the no-need mentality of the administration, which does not make any efforts in this regard. Regarding these issues, the researcher suggests equipping the department with basic ICT facilities, providing an ICT training that covers technical as well as pedagogical aspects, introducing CALL subject to students as a form of pre-service teacher training, organizing mass gatherings to introduce the academic community to the concept of CALL, and adopting the Flipped Classroom approach as this blended learning model is pedagogically more efficient than currently applied methods, and it is applicable under the current limitations that face English language department. More importantly, the researcher suggests an action plan that encompasses all the previously stated recommendations and presents them under one comprehensive scheme that would facilitate CALL normalization at the level of our department and limit the chances for thwarting factors.

LIST OF ACRONYMS & ABBREVIATIONS

AI: Artificial Intelligence

ARN: Academic Research Network

ASR: Automatic Speech Recognition

CAI: Computer Assisted Instruction

CALL: Computer Assisted Language Learning

CALT: Computer Assisted Language Testing

CBT: Computer Based Testing

CMC: Computer-Mediated Communication

EFL: English as a Foreign Language

ELL: English Language Learning

ESL: English as a Second Language

ICALL: Intelligent Computer Assisted Language Learning

ICT: Information and Communication Technology

IT: Information Technology

LITE: Learning Innovation and Technology Enhancement team

LMS: Learning Management System

NLP: Natural Language Processing

REAL: Rich Environment for Active Learning

TAM: Technology Acceptance Model

TTS: Text-To-Speech

UTAUT: Unified Theory of Acceptance and Use of Technology

WP: Word Processor

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GENERAL INTRODUCTION

No other invention has ever influenced our world quite as much as modern day technologies have. The change has been so dramatic that this twenty first century feature transformed every single aspect of our daily lives. One of the sectors remarkably affected by modern technologies is that of education, especially in advanced countries, where ICTs are transforming the educational scenes, redefining traditional premises, and altering roles. The role of the catalyst played by technology encouraged didacticians worldwide to investigate new ways to foster teaching and learning processes through the employment of ICTs, the fact that resulted in plethora of literature and development of myriads of educational software and websites. Out of all disciplines, languages represented a fertile field for ICTs application right from the outset. Especially in the era of constructivism that currently dominates the world of language teaching and learning, where ICTs with their associated flexibility, adaptability, and versatility help instructors create a meaningful learning environment where students are able to construct their own understanding of the language by actively engaging with it in a milieu close to that found in the real world.

Being a global language and the lingua franca of our modern world, English drew and is still drawing a considerable amount of attention from didacticians and software designers and developers, the fact that has given rise to an abundance of websites, software, and applications designed to teach the different skills of this language. Unfortunately, this technological revolution could not be extended to reach all the parts of the world, as a considerable number of countries, mainly underdeveloped ones, still consider educational technologies a novelty and struggle to incorporate them into their educational institutions that are, to a large extent, still stuck in outdated practices and non-operational methods. Algerian educational sector is no exception, as despite the efforts made by the governments and responsible ministries throughout the last decade, technology still could not find its way into Algerian classrooms in general and EFL classroom in particular. Defining technological incorporation in terms of the use of computers and data projectors for material presentation in the classroom, Algerian educational institutions are still far from making the desired use of ICTs and bridging the gap with other pioneering countries (Australia, New Zealand, UK, USA, Canada, ... etc.) that are advancing at a blistering pace in the field of CALL.

Among the major problems that are currently facing the educational sector in Algeria are its inability to get rid of dysfunctional teaching and learning practices and its failure to

integrate ICTs effectively, the fact that translated into placing Algerian educational system in terms of quality in the 126th ranking out of 144 countries that took part in a report released in 2015 by World Economic Forum¹. Similarly, Algeria was dubbed “very weak” in terms of English language proficiency as it ranked 67th out of 70 countries according to a report published by Education First in 2015². Worrying figures that reflect the deterioration that Algerian educational sector is currently undergoing, the fact that should urge all the involved stakeholders to call for taking the needed measures towards altering the current situation and figuring out practical solutions that help improve and modernize Algerian educational system in general and EFL teaching/learning in particular.

The way we teach and learn is increasingly changing in a digital society, where educational institutions worldwide are looking for innovative ways to adjust their practices to the new status quo and meet the ensuing challenges. However, Algerian educational scene seems to a large extent detached from what is taking place around it, as despite some sincere attempts from ministries in charge of the educational sector to integrate ICTs into our schools, these twenty first century tools are still alienated in our classrooms and regarded as a novelty. This abstinence from ICTs could be referred to a number of possible problems, yet no study, at least at the level of English department at Djilali Liabes University, has attempted to investigate them or pinpoint the main reasons that impede CALL integration in our EFL classrooms. Though hindrances could vary in nature to comprise different facets including affective, financial, technical or even pedagogical one, the affective aspect, especially stakeholders’ attitudes, represents a decisive factor that usually lies behind the incorporation or abstinence from educational technologies. Therefore, there is an urgent need to explore stakeholders’ attitudes towards ICTs and investigate other potential problems lying behind impeding CALL normalization at the level of English language department.

The overall objective of the current research is to investigate CALL normalization at the level of English Language Department at Djilali Liabes University, as tackling the issue at the national level is way beyond both the scope of the study and time and financial capacities of the researcher. The present work represents an endeavour that aims at examining the issues impeding CALL normalization at English Language Department at Djilali Liabes University and investigating ways to facilitate CALL incorporation at the level of the same department and that is through accomplishing a number of objectives. First, a description of the state of CALL

¹ weforum.org

² ef.dz/epi/

in Algerian education in general and in EFL classroom in particular is imperative to form an overall image of the issue at the national level. To gain a holistic understanding of the issue and put it in its broader context, the research addresses the status of CALL in Algerian educational scene and tries to portray the issue at the national level through examining literature tackling the measures taken by responsible entities towards CALL integration and the main reasons for their success or failure. Second, the present work aims at examining the attitudes of teachers and students at English Language Department at Djilali Liabes University towards CALL, and their relationship to the absence of twenty-first century tools from EFL classrooms at our department. As it was pointed out by a number studies, stakeholders' attitudes are the most single decisive factor that determines whether CALL is to be adopted or rejected. Third, the current research also aims at investigating the hindrances that impede CALL normalization at our department, as the issue has persisted for too long and no efforts have been made to explore it properly. Though some of the problems are clearly apparent to the naked eye, surely there are some other overlooked or undiscovered issues that remain unearthed and need to be pinpointed. Finally, the researcher aspires to put forward a set of suggestions and solutions based on the identified issues, in a move intended to facilitate the integration of CALL into teachers and students' daily teaching/learning practices through a well-informed action plan based on the experiences of pioneering educational institutions and sound scientific research.

Aligning with the research objectives listed above, the present work is guided by the following research questions

- 1) What is the current state of Computer-Assisted Language Learning (CALL) in Algerian education?
- 2) What are teachers and students' attitudes towards CALL at English language department at Djilali Liabes University?
- 3) What are the issues that impede the normalization of CALL at the level of the same department?
- 4) What measures can be taken to facilitate CALL normalization at English language department at Djilali Liabes University?

In regards to the above listed research questions, the researcher put forward a set of hypotheses that might be the possible answers, they are as follows

- 1) CALL is still to a large extent absent from Algerian EFL classroom, though we have witnessed lately that some basic forms of educational technologies such as data projectors started groping their way into some classes.
- 2) Teachers' attitudes towards CALL would be negative as they are not well acquainted with the use of ICTs in educational setting; whereas, students are more likely to have a more positive attitude as they are considered digital natives who grew up surrounded by different technologies.
- 3) CALL normalization at the level of English department might be hindered by a number of issues, most important of which are tight budget, lack of teacher ICT training, and absent of ICT facilities and equipment.
- 4) CALL incorporation and normalization could be facilitated through the provision of the needed teacher training and ICT equipment.

It is worth pointing out that in order to investigate the research questions and test the raised hypotheses, the research resorts to a cross-sectional descriptive research design, for which a combination of qualitative and quantitative data collection measures are employed, including questionnaires, interviews, and documentary research. Each of which is employed for a particular purpose, as a questionnaires and semi-structured interviews are used to investigate the first, second, and third questions, whereas documentary research is intended to answer the first question and inform the suggestions that result from the fourth question.

The significance of the current work lies in its potential to contribute to the field of academic research at a number of levels. First, this study explores attitudes of teachers and students towards CALL at the level of English language department, a territory that has not been mapped out before despite its undisputable importance in introducing such an innovative tool. As forming a clear image of this, overlooked yet decisive, affective aspect towards ICTs should help us form a better understanding of the current situation and inform us about the likelihood of future adoption of CALL. Second, the present research also aims at systematically pinpointing the real and main issues lying behind the impediment of CALL normalization, and that is through the investigation of all the involved agents. Thus, gauging the real dimensions of the problems hindering CALL introduction is the first logical step towards solving them. Third, the current study is among the pioneering endeavours that genuinely aim at setting up a comprehensive and realistic plan to introducing educational technologies into our teachers and

students' practices in a way that leads to a full state of CALL normalization. Taking such a move would not only make our department one of the pioneering institutions in adopting CALL at an institutional level, but also set it as a reference for other faculties at Djilali Liabes University and even other universities across the country. At last but not at least, the current thesis put forward a detailed review of literature that encompasses all the major aspects related to CALL and its applications, the fact that might help aspiring researchers form a better idea about the field of CALL that is to a large extent unknown to our students' communities and in some cases even among teachers.

The present research unfolds through four different chapters. The first chapter is situational study and research methodology chapter, which encompasses two different sections. The first section is the situational study, which is an examination of the present status of Algerian educational sector with special focus on EFL and CALL, as this section aspires to portray the situation of EFL and CALL in Algerian classrooms, the efforts taken by responsible entities to promote them, and the challenges that they face. The ultimate aim of this section is to draw a holistic image of the status quo of CALL at the national level, so that the researcher can better contextualize the findings of the present regional study and connect what is taking place at the level of English language department at Djilali Liabes University with that happening nationwide. The second section is dedicated to the review of the employed research methodology to help the reader form an idea how the current research is carried out. This section addresses the design of the research, the employed research tools, complementarity between them, the purpose for which they are used, and the investigated sample population.

The second chapter is the review of literature. Intended to inform the readers about all the aspects upon which the current study is premised, this chapter entails four different sections. The first section is dedicated to providing the readers with an informative image of what constitutes the field of CALL, and that is through defining CALL with its classifications and modes, referring to its main applications in EFL classroom, addressing its impact on teachers and students' practices, and reviewing the factors that affect its adoption. The second section addresses attitudes, as understanding this construct should inform the analysis of the gathered data and enable drawing valid conclusions. Therefore, the researcher attempts to define the concept of attitude and its formation process, review how it can be used to predict behaviours, and shed the light on its effect on teachers and their practices. The third section reviews another major phenomenon highly associated with innovative practices, which is change resistance. Given that one of the major goals of the current study is to outline a plan for CALL introduction

at the level of our department, the researcher deems it imperative to demystify the concept of change resistance, what urges people to accept or refuse change, and how change resistance can be overcome. The last section is dedicated to reviewing the concept of normalization and clarifying what a normalized state of CALL is, and that through defining this concept, reviewing its different stages, addressing factors that influence it, and shedding the light on how it can be achieved.

The third chapter is dedicated to data analysis and discussion. Throughout this chapter, the researcher classifies and analyses the data that he has gathered from each sample population group, then discusses them in depth as he attempts to cross check the findings and relate them to what has been previously discussed in the review of literature in order to properly interpret them and come up with concrete answers. Once all the data are analysed and discussed, the researcher draws a line between the findings and the previously raised questions in an attempt to answer them. The fourth and last chapter is implications and recommendations chapter. Preserved to answering the fourth research question, this chapter is an endeavour to present a set of informed suggestions and solutions intended to enable the adoption of CALL at the level of English language department and eventually normalize it.

The present study faced a number of obstacles that rendered the process of data collection more troublesome and caused the limitation of the scope of the research. The researcher experienced hard times trying to set appointments for interviews with administrators and teachers, as their unavailability caused several delays and postponements. Furthermore, reluctance of questionnaire respondents is another major issue, as out of 25 teachers to whom the questionnaire was originally handed, only 12 returned their copies, whereas the problem exacerbates furthermore with students, as out of 250 questionnaire copies distributed by the researcher, only 134 were returned. The fact that resulted in reducing the size of the sample population significantly. Another major issue is the abstinence of all the approached officials from the ministry of Higher Education and Scientific Research Ministry from giving any interviews or responding to any questionnaires, as all researcher's attempts to contact them were ignored despite the fact all the purpose of the study was clearly stated and the questions were sent beforehand.

The introduction to this thesis has briefly outlined the background of the study, statement of the problem, aim of the study, research questions, research hypotheses, significance of the study, the overall outline of the present work, and limitations that faced the researcher. The following

chapter will concentrate on the research design and the current situation of the Algerian educational system with a particular focus on CALL.

CHAPTER ONE: Situational Study and Research Methodology

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1.1 Introduction

In addition to introducing the readers to the methodology of research used throughout this thesis, the present chapter is an endeavour to shed the light on Algerian educational scene and ICTs in its classrooms. First, the researcher presents and discusses literature that covers the educational system and the status of EFL in Algeria. Then, he inspects the problems that face EFL instruction and tries to portray the status of ICT in Algerian education and the challenges it faces. Second, methodological components of the current work are discussed, including research design and different employed methodologies, be they descriptive, quantitative, and qualitative methods. Likewise, the researcher tackles the used research tools, including questionnaire, interview, or documentary research, in detail clarifying the rationale behind choosing them and displaying some related literature that pinpoints their advantages, disadvantages, and complementarity between them. Additionally, the researcher displays the different categories of the sample population, and the different problems that were faced while conducting the present research.

1.2 Algerian Educational System

Having its fundamentals first set in the early 1960s, the Algerian educational system shoulders the responsibility of providing education for millions of Algerians, as the right of education for everyone is guaranteed and protected by the state constitution. Asserting the state's grip over the educational sector, Article 53 of the Constitution of 1996 stipulates that all Algerians have the right for a free education in governmental educational institutions owned and managed by the Ministry of National Education and the Ministry of Higher Education and Scientific Research (Djaber & Ibrahim, 2015). While the former is in charge of preparatory, primary, middle, and secondary cycles, the latter is responsible for tertiary level education and training (ibid.). Regarded as one of the main gains of a postcolonial Algeria, primary, middle, and secondary education are compulsory for all citizens aging 6 to 16 years old (ibid.).

Education in Algeria is carried out in terms of four different stages that encompass preparatory education, primary and middle school education, secondary education, and tertiary education. The preparatory education aims at preparing children aging 3 to 6 years old for the primary school life as it focuses on socio-educational aspects; this includes familiarizing little children with the collective atmosphere of classrooms, making them aware of their bodies and environment as well as developing in them rudimentary skills such as reading, writing and

numeracy (Remaoun, 2000). This stage of education might be offered at the level of kindergartens, private preparatory schools, or within public elementary schools. Though it is not obligatory, ministry of national education stated that in 2012 73% of primary schools' first year pupils have received preparatory education (ibid.), a figure that is rising on a regular basis as the government is allocating more budget for this stage of education.

The second stage is spread over the span of nine years as it entails five years at the level of primary school and four years at middle school. Delivered in Arabic, Tamazight, and French in addition to English which is included as a second foreign language at the middle school, primary and middle-school education aims at developing pupils' basic skills (speaking, writing, reading, listening, and numeracy), building their personalities, preparing them for a lifelong learning journey, and reinforcing their sense of citizenship and national identity (ibid.). At the end of middle school's four years, pupils sit for a final national examination commonly referred to as "Brevet d'enseignement moyen" (BEM) that enables them to move the next stage that can be either secondary education or vocational training.

Secondary education that stretches over the span of three years takes place at secondary schools, and varies between general education and technical education. Pupils who successfully pass their BEM exam are sorted into literary stream or scientific stream according to their marks in particular subjects as well as personal tendencies. Broadly speaking, secondary education aims at further developing pupils' knowledge acquired at previous stages, preparing them for tertiary education, and getting them ready for shouldering the responsibilities and encountering challenges of life (ibid.). At the end of the secondary education, pupils sit for a decisive end-of-secondary cycle examination (Baccalaureate Examination) that determines whether they can move to the next stage which is tertiary education or not; and if they do, what discipline they would be able to study at university.

Falling under the authority of Ministry of Higher Education and Scientific Research, tertiary education is delivered at the level of universities and national tertiary vocational schools (elsewhere known as colleges and graduate schools, mainly created by other ministries or private institutions). Starting with around 2275 students in 1962, the number of students at tertiary education level reached the 1.36 million step, according to the statistics released by Ministry of Higher Education and Scientific Research in 2016³. A huge quantitative progress

³ <http://www.liberte-algerie.com/actualite/luniversite-sous-le-poids-du-nombre-record-de-nouveaux-bacheliers-229326>

with a number of questions to be raised regarding the qualitative aspects. In an attempt to cope with this substantial increase in students' numbers, the government allocates 8% of its budget to the Ministry of Higher Education and Scientific Research (Remaoun, 2000).

Launched in 2004, LMD (license, Master, Doctorate) system was government's attempt to raise graduates' employability chances and conform to the international standards (Ministry of Higher Education and Scientific Research, 2012). The system has been gradually generalized to include all subjects except medicine. The LMD system was also supposed to promote the modernization of tertiary education through the integration of ICTs and encourage teaching foreign languages, especially English, across different specialisms. Over the course of 8 years (three years for License degree, two years for Masters, and at least three years for Doctorate degree), students are awarded a license (Bachelor) degree for the accumulation of 180 credits (first cycle), Master degree for the accumulation of 120 credits (second cycle), and for a doctorate degree (Ph.D.) students are required to present a thesis and publish an article in a specialized journal (ibid.).

Medical, scientific and technical disciplines are delivered in French, whereas Arabic is the language of instruction used for human and social sciences except for foreign languages. The network of higher education institutions encompasses

- *39 universities;*
- *1 university of continuing education;*
- *17 dispersed university campuses;*
- *18 national tertiary vocational schools;*
- *6 teacher training colleges;*
- *2 university annexes;*
- *10 preparatory schools.*

(ibid., p. 5)

Furthermore, National University Student Services Office (ONOU) ensures the accommodation of 56% of students, and offers symbolic DA 4000 grants that 75% of students receive every trimester (Remaoun, 2000), the grant can go up to DA 14000 a month in the case of unemployed doctorate candidates.

Since the independence of Algeria in 1962, the education scene in the country witnessed constant changes and reforms that aimed at putting this vital sector at the heart of country's social and economic development. The primary aim of Algerian educational institutions is to promote high citizenship values and help produce responsible and productive individuals. The diffusion of knowledge, promotion of scientific research, as well as generating and training qualified work force have always been central goals for the successive governments. However, despite all the efforts and reforms, the Algerian educational system seems to be stuck in a vicious circle unable to attain the expected goals and meet international standards.

1.3 EFL in Algeria

Worldwide changes triggered by socio-economic factors as well as globalization affected the linguistic scene in all the countries including Algeria. In the early stages of country's independence in 1962, Algerian education was delivered exclusively in French, the first foreign language nowadays. The dominance of French came as a result of the colonial heritage that left the country with a francophone elite; whereas for Arabic, it was dictated by religious and ideological orientations as the country is part of both Islamic and Arabic worlds. Yet, that situation did not last for long before the authorities realized the importance of English language and introduced it as a compulsory subject to be taught. Throughout the years, Algerian educational scene witnessed multiple reforms, every one of which emphasized English language and gave it more importance. This can be deduced from the following passage that describes the broad objectives of English programme

“The study of English must imperatively be conceived with the objective of helping our society to get harmoniously integrated in modernity. This means a fully complete participation in a rising linguistic community of people who use English in all types of transactions. This participation must be based on sharing and exchanging ideas as well as experiences in the fields of science, culture and civilization. This will make it possible to know oneself and the other.”

(Programme of English as a Second Foreign Language, 2003; cited in Senoussi, 2012, p. 26)

In pre-tertiary education, English was first taught for five years (two years at middle school and three years at secondary school) yet as a result of 2004's reforms, the period of English instruction got extended to seven years as it is introduced since the first year of middle school (which lasts for four years). EFL is a compulsory subject for all pupils, as it is stated by Ourghi (2002), who clarifies that *“It (EFL) is part of the curriculum regardless of the learners’*

stream (literary, scientific or technological) and represents an additional facet to the general learning and instruction of pupils” (Ourghi, 2002, p. 24). However, it is worth pointing out that the coefficients and time allotted to English language instruction may vary depending on the grade and the stream of the pupil. Throughout the last couple of decades, there had been attempts to include English in primary schools’ curriculum. Yet, this move failed as it did not go beyond the experimental phase due to sociolinguistic and political factors. By the end of secondary education, pupils are expected to have acquired a functional English and be able to express themselves in clear, accurate and meaningful way both orally and in writing across a range of real life situations.

The paramount importance that English is getting in Algerian education was translated into the inclusion of English as specialism at tertiary level, with the opening of English departments virtually at all the universities across the country. Furthermore, 2004’s reforms resulted in the introduction of this language as a subject to all the other specialisms especially technical and scientific ones. The increasing importance of English language as the main interaction and publication medium in economic and scientific fields will inevitably manifest itself even more noticeably on the Algerian linguistic scene. The situation is already changing as the new generations are more connected with the global community, more affected by globalization, and even more aware of English language significance as a means of universal interaction and a key to successful academic and professional pursuits.

1.4 Problems of Learning EFL in Algeria

Given its status as a lingua franca used worldwide, English is getting more importance on a daily basis. EFL is introduced to Algerian pupils in the first year of middle school as a compulsory subject, yet the command of this language represents a challenge to most pupils. In fact, it became such a troublesome subject that it is considered as one of the major reasons that affect pupils’ exam success rates negatively. The problems hindering EFL teaching are numerous and multifaceted, yet they can be classified according to the stage in which they occur. In pre-tertiary education, English language syllabi’s levels do not match the proficiency of pupils, in fact the majority of pupils seem to be lagging behind and unable to achieve the objectives set by the syllabi designers. Furthermore, learning languages necessitates practice of the four skills at a regular basis, yet this is hard to achieve for two main reasons; firstly, pupils lack an environment in which they might practise their skills, especially productive ones; secondly, the overall curricula is overloaded, and thus pupils are already overwhelmingly

burdened by homework from other subjects, leaving by that little room if ever for independent study of English. Moreover, like in the case of other subjects, the ultimate goal of pupils is not mastery of the language but rather the attainment of the pass mark in exams, which are predominantly written ones.

Whereas for EFL at tertiary level (the researcher focuses on students majoring in English language), it all starts with the low admittance standards and the absence of an enrolment test resulting in accepting thousands of new students most of whom lack the basics of language and the rudimentary skills. Furthermore, the problem exacerbates even more with the insufficient time allotted to the teaching of basic skills, the absence of adequate facilities, the late start of academic year, the unreasonable long periods of holidays, teachers' frequent absences, students low rates of attendance, and the syllabi that do not get completely covered. Moreover, a considerable number of students lack autonomy as they indulge themselves in a yearlong holiday without opening a book, in fact the only reason for which students really study is the end semester exams, where cheating has reached alarming levels. Given that all exams at the level of the English departments, except for oral expression subject, are written ones, students tend to give little attention to speaking skill and focus solely on writing, resulting in "deaf-and-dumb" students who are unable to conduct a proper conversation (Ruan & Jacob, 2009). "Deaf-and-dumb" (ibid.) phenomenon is also a result of the inappropriate methods and insufficient time allotted to the teaching of speaking skill, in addition to the disregard of listening and reading skills, which are nowhere to be found in the curriculum.

Besides the theoretical training that they get during their studies, university teachers do not receive any actual teacher training before assuming their positions as university lecturers, the fact that contributes to the "time-consuming, low efficiency" problem witnessed by all universities across the country. Consequently, students spend years learning English language yet they make little progress. Further, though their broad lines are predetermined by the responsible ministry, content of the taught syllabi is subjected to teachers' personal choices and tendencies resulting in the discontinuity and repetitions throughout the years. Additionally, the applied teaching methods are outdated and predominantly teacher-centred, mainly due to the large numbers of students per classroom and lack of effective training that opens teachers' eyes on active teaching methods other than passive lecturing. Equally important, with the absence of the needed facilities and equipment, ICT and modern technologies are still alienated, except for some teachers who use their personal laptops and data projectors to present learning materials. In the same way, the fact that many faculties still lack internet connection and

language laboratories discourages teachers and deprives students from the opportunity of properly developing their speaking and listening skills, which necessitate the presence of such facilities. Even if laboratories are in place, other factors such as teachers' lack of training on how to incorporate ICT, lack of maintenance, and large numbers of students are major hurdles that might dishearten even the most enthusiastic teachers.

The major problem of EFL teaching in Algeria is the way the problem itself is dealt with. Hence, despite the fact that the objectives set by syllabi designers at the level of middle and high school are clearly unrealistic and unachievable by pupils within the set time frame, educational authorities persist on raising the bar higher and loading the syllabi even more. Then, the disregard of reality when designing the syllabi raises a lot of questions concerning syllabus designers' awareness of what is going on in the field. On the one hand, the supposedly implemented "Competency Based Approach" emphasizes the teaching of communicative skills including oral skill; on the other hand, all the examinations are written ones, and the implemented passing system makes mark not competency the ultimate objective of pupils. Whereas for tertiary education, so little is done to remedy new students' low efficiency as the basic skills receive insufficient teaching time, and the way they are taught is at best unsatisfactory and does not meet students' expectations. Moreover, despite the undeniable efficiency and success of ICT incorporation in EFL teaching that have been proved worldwide, technology is still denied its place in Algerian EFL classroom.

1.5 ICT in Algerian Education

The last decade witnessed multiple initiatives made by the successive governments towards a full integration of ICTs in education. In 2002, educational reform resulted in the formal inclusion of ICTs into education as an integral part of country's ICT policy (Guemide & Benachaiba, 2012). This move was translated into the equipment of all secondary schools and, at a later stage, middle schools with a computer laboratory that entails 15 computers connected to the internet in addition to the introduction of computing as a subject. Though computing is a compulsory subject for all first year secondary school pupils, the government aims at generalizing ICT to include all subjects so that pupils learn through computers rather than learning about computers. Therefore, five years later in a seminar held by his ministry on February 25th, Mr Boubakeur Benbouzid, the then Minister of national education, has pledged to generalize computing subject to include primary schools and middle schools as well (Ider, 2011). Though, the objective of mastering ICT is shared by both middle and secondary

education, the targeted competencies differ. At the level of primary and middle schools, the objective is to familiarize pupils with computers and teach them the basics of how to type a document and look for information on the internet. Whereas, in secondary school the aim is to enable pupils classify and exploit the gathered data effectively (IDER, 2011).

At tertiary level, all universities were allotted the needed budget for the establishment of laboratories and provide their students with a permanent internet connection. Additionally, universities are autonomous when it comes to their ICT policy and have no restrictions imposed on them concerning the creation of virtual classes, virtual libraries, and delivery learning materials through the internet. This was reinforced by the introduction of Academic Research Network (ARN), a special 2 MB/S network, to be raised to 32 MB/S at a later stage, which connects all the universities across the national territory allowing by that the establishment of virtual libraries and the delivery of lessons via video conferencing technology (Benhamadi, 2002). The former comes under a sub project labelled “Virtual Libraries” which aims at facilitating the diffusion and access to information and different types of university publications (dissertations, articles, papers ... etc.). Whereas the latter is highly emphasized as policy makers see in video conferencing the solution for overcoming the lack of appropriate supervision especially in remote regions, and that translated in the sub-project “Tele-Enseignement” that aims at equipping universities with the needed infrastructure. The integration of technology in tertiary education was emphasized even more with the introduction of LMD system in 2004. Under this system, universities are required to accentuate ICTs and foreign languages by including them in the curriculum of all the different specialisms as compulsory subjects.

In order to enhance the incorporation of ICTs, the government cooperated with a number of organizations and countries including UNESCO that helped in the planning of ICT integration process and Japan that offered USD 750,000 grant intended for the funding of teacher-training programme on ICT (Guemide & Benachaiba, 2012). In addition, “eLearning” project was launched in 2006 in collaboration with “Thomson” and “Microsoft” corporations, the project in question aimed at providing 4000 lessons designed to promote the use of computers and communication technologies in teaching (Hamdy, 2007). Other collaborative projects include “Med-Twinning”, a network that serves as a virtual bridge that connects Algerian educational institutions with their Italian counterparts (Guemide & Benachaiba, 2012). Similarly, the project “e-link”, launched in 2006, aimed at connecting Algerian pupils with their American peers; after that it has proved successful in dozen of high schools in Algiers and Blida, “e-link” was expected to be generalized to include other institutions by 2008

(Maghreb Emergent, 2013). Government's initiatives also encompassed the adoption of a set of strategies intended to

- *Promote the development of e-learning resources.*
- *Facilitate public-private partnerships to mobilise resources in order to support e-learning initiatives.*
- *Promote the development of integrated e-learning curriculum to support ICT in education.*
- *Promote distance education and virtual institutions, particularly in higher education and training.*
- *Promote the establishment of a national ICT centre of excellence.*
- *Provide affordable infrastructure to facilitate dissemination of knowledge and skill through e-learning platforms.*
- *Promote the development of content to address the educational needs of primary, secondary, and tertiary institutions.*
- *Create awareness of the opportunities offered by ICT as an educational tool to the education sector.*
- *Facilitate sharing of e-learning resources between institutions.*
- *Integrate e-learning resources with other existing resources.*

(Hamdy, 2007, p. 5-6)

Teacher training programmes also adopted the ICT as an integral facet of their curricula. Almost all of secondary school teachers in addition to 60% of middle school teachers have received an average of 30 to 60 hours of basic training on ICT (Hamdy, 2007). "Tempus-Meda Ide@" is another attempt that aimed at supplying the Algerian university with teachers specialized in the integration of ICT in teaching. Carried out at the level of a number of teacher training centres (ENSET of Oran, ENS of Bouzaréah, and ENS of Constantine) and universities (Blida University, Mostaganem University, and Annaba University) in corporation with European Universities including those of Strasbourg (France) and TECFA (Switzerland), "Tempus-Meda Ide@"'s main objectives include producing qualified teachers able to incorporate ICT into their practice, enabling the planning and implementation of ICT at the level of universities, in addition to the development of "Distance Learning" through the use of technological aids (Eldjazaircom, 2014). Moreover, as a means to equip the Algerian educational scene with a world-class facility and facilitate Algeria's entry into technology age, USD 130 million was allocated by the government for the establishment of Sidi Abdallah

Technology Park. In addition to an industrial park, Sidi Abdallah, situated 30 km western the capital Algiers, consists of three technology parks that provide a nurturing environment for firms as well as individuals aiming at developing ICT sector in the country (Hamdy, 2007).

Initiatives such as study days and workshops are organized by the Scientific and Technical Research Centre (CERIST) in collaboration with Ministry of National Education and Ministry of Posts, Information Technology and Communications (MPTIC). A case in point is 2011's workshop on the use of ICTs in education and strategies that might help developing the Algerian educational system, which witnessed the participation of "Intel" corporation (*ibid.*). The workshop was also an opportunity for the then representative of Ministry of National Education Mr Chami Tahar to present the broad lines of the ministry's 2011-2014 strategy. He stated that by the horizon of 2014 (1) all the different departments and institutions falling under the authority of Ministry of National Education would be connected with internet and intranet networks that facilitate monitoring, communication, access, and interchange of files and information in real time as well as tracking students' academic pursuit from primary school until university; the ministry also pledged other measures, including (2) the development of software that would help managing administrative and pedagogical tasks; (3) training all administrative staff as well as principles, inspectors, and teachers across the country on the use of ICT; (4) the full integration of ICT in education and the adoption of "eLearning" in all educational institutions and across all the cycles, from primary school to university; (5) and finally the realization of virtual school and substitution of paper books and copybooks by electronic ones with a digitalized content (*ibid.*).

The successive Algerian governments seem to be aware of the importance of ICT in education, and that can be inferred from the multiple attempts and initiatives launched throughout the last decade. The projects covered all the different stages from primary education until tertiary one. Furthermore, ICT integration targeted all the stakeholders including teachers, students, administrators, and inspectors. Yet, despite the huge amounts of money invested and the employment of foreign expertise and world leading corporations, ICT integration projects had little, if ever, impact; one may even venture to say that the great majority of these attempts, if not all of them, were doomed to utter failure. The reasons lying behind these failures stem from a number of issues that will be discussed in detail in the following section.

1.6 ICT Problems in Algerian Education

Algerian government's will to incorporate ICT in education is far from being questionable, yet the abject failure of the great majority of the attempts that have been made in this regard raises a lot of questions, the most urgent of which is "why have these projects been so unsuccessful?". The reasons vary according to the nature of the initiative and the individuals who were in charge of it. Starting by the introduction of computing as a subject in secondary education curriculum, it should be pointed out that laboratories are at best basic, and most of them are characterized by the limited number of computers and lack or even absence of internet connection. Furthermore, computing syllabus is so rudimentary and unappealing as it deals with matters that are of little or no interest to pupils. Additionally, the time allotted to this subject is limited to two hours per week, which are very insufficient, and the absence of specialized teachers in ICT makes the responsibility of delivering computing classes fall to teachers with the least number of teaching hours regardless to their area of specialism or ICT skills. The fact that leaves us with a paradoxical situation; on the one hand, the government spends huge amounts of money on the creation and equipment of computer laboratories, and thousands of ICT specialists graduate from Algerian universities every year; on the other hand, pupils tackle this subject for mere two hours per week with unspecialized teachers.

Additionally, a very common feature shared by ICT incorporation projects is that they are cancelled once the individuals standing behind them step down, revealing by that the absence of a clear and a long-term strategy that ensures the continuity of the project. Likewise, the proposed projects seem to be over ambitious and sometimes unrealistic in scope, or tend to try to reinvent the wheel by ignoring former attempts and their mistakes. Moreover, a long list of endeavours made towards integrating technology in education remained promises that have never been fulfilled, case in point in are the generalization of ICT instruction to include primary and middle-schools, digitalizing school curricula, and substitution of paper books by electronic ones; projects that had the year 2014 as a deadline yet they were never realized. Even if the project went beyond the "ink on paper" phase, most of the time it would never leave the experimental phase, cases in point the "e-link" and "Med-Twinning" projects, which were never generalized despite their admitted success.

Further, the budget allotted to ICT integration is not properly supervised, thus despite government's emphasis on the outfit of universities with computer laboratories and video conferencing equipment, still there are a considerable number of departments that lack this type

of facilities. This might be either the result of poor budget management or unwillingness of people who are in charge to take such a step. Moreover, even if the laboratory is in place there are other problems such as the inadequacy of facilities, the lack of maintenance, or simply the facility is unexploited and left buried in dust behind closed doors. Furthermore, teachers and students reluctance is also a major issue as they might just leave the laboratory unexploited. In addition, in some faculties the internet connection is available, yet students cannot access it because it is locked by a secret password. Concerning the virtual libraries, a handful of universities across the country possess one, and most of them are so slow and lead to expired links, the same applies for “Academic Research Project” (ARN) project, which was supposed to connect universities and provide students with an access to virtual libraries.

Though laboratories are installed and projects such as “ARN” are put in place, there seem to be no plans for making teachers and students aware of such initiatives and encouraging them to exploit the facilities in question. Similarly, most of the projects take place at the capital Algiers and other major cities depriving by that people living in internal and remote cities from the opportunity of benefiting from them. When it comes to the instruction of computing in teacher training programmes, the syllabus is irrelevant and completely theoretical with no practical side. Rather than instructing teachers how to incorporate ICT in their practice, the course focuses on rudimentary skills that should not be allotted all that attention. Furthermore, contrary to the figures released by the Ministry of National Education, which claimed that teachers received between 30 and 60 hours of instruction, computing classes in teacher training programmes did not exceed 10 hours in most cases. More importantly, university teachers do not receive any teacher training before claiming their new positions; left without guidance nor proper incentives, ICT integration is a matter of personal choice and preference more than anything else is.

Though considerable amounts of money and efforts were invested in the process of ICT integration in Algerian education, the poor planning and the absence of a long term and broad vision aborted the projects in their early stages. Most of the project were characterized by the lack of continuous supervision that ensures their efficient and smooth running despite the alternation of people who are in charge. Another hurdle is the neglect of previous experiences and mistakes the fact that leads to the repetition of the very same mistakes and consequently the same negative outcomes. In addition, unrealistic and uncalculated attempts are also issues that hampered the appropriate incorporation of technology in Algerian educational scene. Moreover, the lack of an effective communication strategy keeps learners and teachers alike in

the dark, as they are rarely made aware of the initiatives and the ways they can access and make use of them. Such initiatives should involve the main stakeholders, so that these latter adopt it and keep it going throughout the years despite the change that might happen at the level of the administration. One common feature about all the aforementioned problems is that they are all soluble, if preceded by careful planning, related to realistic goals, reinforced by appropriate staff training, and accompanied by continuous superintendence. After tackling the status of EFL and CALL in Algerian education and discussing the challenges that they face in the first section, the second section is devoted to reviewing the research design of the study and the employed methodologies and research tools.

1.7 Research design

The current work is a cross-sectional descriptive study that explores a number of independent variables deemed to have an effect on CALL normalization at the level of English language department, most important of which are stakeholders attitudes and problems impeding educational technologies integration. The present research has been referred to as cross-sectional study because it is based on gathering and examining data within a particular period of time that roughly extends from September 2014 to November 2015. The thesis relies on a combination of qualitative and quantitative data collection measures that aim at investigating the current state of CALL in Algerian education, its employment by teachers and students, stakeholders' attitudes towards CALL at English language department at Djilali Liabes University, in addition to exploring hindrances that impede CALL normalization at the level of the same department.

The researcher opted for a combined quantitative and qualitative research design that is primarily descriptive in nature for a number of reasons. Descriptive research that predominantly aims at describing a state of affairs as it exists at a particular point of time (Creswell, 2013) allows researchers to accomplish a number of objectives that cannot be reached otherwise, most important of which is gaining more insight about a particular phenomenon, especially one that cannot be reproduced in a laboratory (Degu & Yigzaw, 2006). It also allows researchers to study subjects and examine phenomena in their natural habitat/environment without the influence of artificial settings (Creswell, 2013). Though the obtained results cannot be generalized, descriptive research design is still widely opted for because it allows the combination of quantitative and qualitative research methods.

As for the employment of the research tools, the current work makes use of three different tools to investigate the research questions raised earlier and ensure triangulation. First, two questionnaires one for teachers and another one for students are employed for the express purpose of exploring a number of independent variables including respondents' attitudes towards CALL, their ICT literacy, their likelihood to adopt it, and problems hindering them from using educational technologies. The questionnaires, which consist of a combination of closed-ended questions, open-ended questions, and likert-scale surveys, are statistically analysed using Statistical Package for social Sciences (IBM SPSS Statistics 21). On the other hand, two different open-ended interviews are employed, one for teachers and another one for administrators, both of which are analysed using interpretive analysis method. Meanwhile, documentary research is used to explore CALL's current status at the national level to help draw a more holistic image of educational technologies and put matters into a wider context.

1.7.1 Quantitative research

Developed in natural sciences fields to allow the study of social and cultural phenomena (Thomas, 2010), quantitative research is a method that involves *“the use and analyses of numerical data using statistical techniques ... to produce statistically reliable data that tells us how many people think or do something”* (Search for Common Ground, 2004, p. 4). Data obtained through quantitative research is a numerical one that includes means, averages, ratios, and/or ranges, therefore its results are independent, reliable, and replicable (ibid.). According to Stainback and Stainback (1988, cited in Thomas, 2010), quantitative research has three main purposes, (1) to describe, (2) to compare, and (3) to attribute causality. Being such a widely used research method results from a number of advantages that can be summarized under the following points

- *It can be used when large quantities of data need to be collected.*
- *The result is usually numerical (quantifiable) and hence considered more “objective”.*
- *The data is considered quantifiable and usually generalizable to a larger population.*
- *It can allow researcher to see changes overtime and help develop quantitative indicators.*
- *It can provide a clear, quantitative measure to be used for grants and proposals.*

(Search for Common Ground, 2004, p. 4)

Nevertheless, like any other method, quantitative research is prone to some drawbacks that expose it to some criticism. First, the nature of the gathered data necessitates the use of statistical analysis software such as Excel, Access, and SPSS (Search for Common Ground, 2004). However, these types software may not be available in some countries, besides the fact that not all researchers are able to operate them, as they require special skills (ibid.). Second, ensuring reliability and validity of results require covering large samples of population, the fact that results in considerable mass of data (ibid.). The larger the mass of data, the more time and effort it requires to collect, classify, encode, and analyse (ibid.). Besides, the nature of quantitative research tools result in fragmented data that consume more time to sort out, classify, and analyse (ibid.). Moreover, quantitative data lack important human elements that cannot not be gathered through large scale written surveys (ibid.).

Quantitative research follows a paradigm that sets it different from other research methods. It is employed by a researcher who has clear research objectives in order to get a broad comprehensive yet precise and accurate understanding of a particular situation, be it socio-demographic characteristics of a population, comparison between different problems, or/and evidence about the type, size, and scale of a problem (Johnson & Christensen, 2003). Additionally, this method results in measurable quantitative data that can be analysed through a number of methods, including deductive, descriptive, and/or inferential statistics (ibid.). Furthermore, quantitative research is a means to provide a general overview of a phenomenon, confirm hypotheses, and/or precisely measure/quantify data in an attempt to provide reliable, verifiable, and generalizable results (ibid.).

1.7.2 Qualitative Research

Directly related to social fields, qualitative research “... *involves an interpretive, naturalistic approach to its subject matter; it attempts to make sense of, or to interpret, phenomena in terms of the meaning people bring to them*” (Denzin & Lincoln, 2003, cited in Thomas, 2010, p. 301). Originally designed to help researchers understand people as well as social and cultural contexts in which they live (Thomas, 2010), qualitative method of research aspires to investigate issues that represent an obscure territory for the general public and require shedding some light on their real dimensions and characteristics to gain more comprehensible insights (Domegan & Fleming, 2007, cited in Thomas, 2010). Known for using ‘*soft*’ data and gets ‘*rich*’ data” (ibid., p. 301), qualitative research is opted for as a research method for a number of purposes including

- *understanding the meaning that participants in a study give to the events, situations and actions that they are involved with; and of the accounts they give of their lives and experiences;*
- *understanding the particular context within which the participants act, and the influence this context has on their actions;*
- *identifying unanticipated phenomena and influences, and generating new, grounded theories about them;*
- *understanding the process by which events and actions take place; and*
- *developing causal explanations.*

(Thomas, 2010, p. 304)

Though qualitative research makes use of a number of research tools for data collection such as interviews, questionnaires, and field observations, the researcher always plays the role of primary data collector and interpreter (ibid.). As s/he assumes a pivotal part in “*constructing an understanding of the research environment through self-interpretation of what happens ... thus, qualitative research produces a result which is ‘an interpretation by the researcher of others’ views filtered through his or her own*” (ibid., p. 304). Qualitative research is characterized by a number of advantages. First, it has been proven useful for in-depth investigations of a limited sample population and provides detailed insight into complex phenomena (Search for Common Ground, 2004). Second, it allows gaining a better understanding and description of individual characteristics of participants (ibid.). Furthermore, the researcher can identify contextual and environmental factors that interfere or affect the phenomena under investigation (ibid.). Additionally, besides collecting data in their naturalistic setting and allowing cross-case comparisons, the researcher can determine how participants personally view and interpret the investigated phenomenon (ibid.).

On the other hand, this method also entails a number of drawbacks that researchers should be aware of and try to overcome, including

- *Knowledge produced might not generalize to other people or other settings (i.e., findings might be unique to the relatively few people included in the research study) (ibid., p. 4).*
- *It is difficult to make quantitative predictions (ibid.).*
- *It is more difficult to test hypotheses and theories with large participant pools (ibid.).*
- *It generally takes more time to collect and analyse the data when compared to quantitative research (ibid.).*

- *The results are more easily influenced by the researcher's personal biases and idiosyncrasies* (Search for Common Ground, 2004, p. 4).
- *Results in data which is not objectively verifiable* (ACAPS, 2012, p. 12).
- *Needs skilled interviewers to successfully carry out the primary data collection activities* (ibid.).

Qualitative research is characterized by a number of features that distinguish it from quantitative methods. It aims at providing an in-depth understanding of a particular phenomenon through exploring opinions, perspectives, and explanations of the affected population (ibid.). This method results in clustering considerable amounts of categorical data that helps provide better contextual understanding of the phenomenon, and enables the researcher to explore the issue from within and therefore provide more detailed and comprehensive description and interpretation of the issue or its results (ibid.). Qualitative research relies on inductive reasoning and descriptive analysis that usually lead to categorisation, description, or analysis of findings through systematic comparison (ibid.).

1.7.3 Complementarity between Qualitative and Quantitative methods

The combination of qualitative and quantitative methods used in this research has been endorsed by a number of scholars (Massey, 2003, cited in Bensafa, 2012; Steckler et al., 1992, cited in Ballou, 2010) who consider them complimentary as their combination “*accommodates the need for both “objective data” (breadth of an issue) and the “human element” (depth of an issue)*” (Search for Common Ground, 2004, p. 5). Reichart and Cook (1979, cited in Ballou, 2010) went even further asserting that the study of complex phenomena requires the combination of qualitative and quantitative research methods to ensure exploring all the aspects that surround the phenomenon under investigation, as “*The issue today is not one or other but rather how they can be combined to produce more effective evaluation strategies*” (ibid., p. 6152). Complementarity between qualitative and quantitative methods manifests itself in a number of ways including

- *While the quantitative design strives to control for bias so that facts can be understood in an objective way, the qualitative approach strives to understand the perspective of the programmed stakeholders, looking to first- hand experience to provide meaningful data.*
- *The accumulation of facts and causes of behaviour are addressed by the quantitative methodology, whereas the qualitative methodology addresses concerns with the changing and dynamic nature of reality.*

- *Quantitative data are collected under controlled conditions in order to rule out the possibilities that variables other than one under study may account for the relationships identified, while qualitative data is collected within the context of its natural occurrence.*

(Bensafa, 2012, p. 59)

Taking into account all that has been discussed regarding the combination of qualitative and quantitative research methods, the researcher saw in this combination a way to cover a relatively large sample of population without compromising the need for in-depth precise data, and, equally important, having numerical data regarding the phenomena under investigation and measuring to what extent they are spread. Moreover, the complexity of the issues investigated throughout this research requires a multi-methodological research approach that guarantees the exploration of the investigated aspects from different dimensions to ensure objectivity and reliability of the findings and ensuing recommendations. Likewise, the varied nature of the investigated sample populations in terms of availability and size dictated the need for using more than one method of research.

1.8 Research Tools

The present study makes use of three different research tools deemed appropriate for investigating the research questions upon which the current work is premised. First, two questionnaires are employed, one for students and the other one for teachers who could not find time to sit for an interview. The questionnaires are a mixture of closed-ended questions, open-ended questions, and likert-scale surveys; each questioning type is employed depending on the nature of the data that the researcher is aspiring to explore. As far as teachers' questionnaire is concerned, the first section, that is intended to investigate respondents' background information, is made up of closed-ended questions with a set of determined options in addition to open-ended questions. The same thing applies to the second section that tackles computer accessibility among teachers, the third section that covers ICT training received by teachers, and the fourth section that explores ICT applications in classroom, as they all make use of the same types of questioning. Meanwhile, likert-scale surveys are used to determine teachers' attitude across all the three domains (affective domain, cognitive domain, behavioural domain), and gauge their likelihood to adopt ICT and that by measuring their perception of CALL in terms of perceived usefulness, perceived ease of use, its compatibility with their practices, and computer observability in their environments. Likert-scale surveys are also used to investigate teachers' computer competence and problems that impede CALL normalization at English

language department. On the other hand, students' questionnaire is designed in the same manner with one single change that concerns the fourth section as it investigates the use of CALL for learning rather than its application in the classroom for teaching purposes.

Second, two different interviews are used for both teachers and administrative staff. These interviews are mainly made up of a list of open-ended questions, as the researcher reserves the right to ask the interviewees extra questions to explore issues further when deemed necessary. Teachers' interviews tackle the same aspects that the questionnaire addresses, so through a set of open ended questions the researcher tries to investigate teachers' access to ICTs and their frequency of using them, CALL training they received, types of educational technologies they use in their classrooms (purpose, type and place), their affective, cognitive, and behavioural domains of attitude, their perceptions of students' attitude towards CALL, advantages and disadvantages they associate with CALL employment, problems they deem the reason for impeding use of CALL at the level of our department, and solutions they suggest for overturning the current situation. It should be pointed out that all interviewees are asked to fill in a short form intended to investigate their personal background information and characteristics. Though employing two different tools with teachers comes out of necessity rather than choice, crosschecking the results of both tools and comparing data allows the researcher to gain a deeper understanding of the issues at hand.

As for the interview used with administrators, namely the vice dean of the faculty and the head of English language department, it addresses a number of aspects that can only be answered by administrators. These aspects include administration's efforts to encourage CALL incorporation among teachers and students, ICT facilities that the faculty provides, ICT training provided to teachers, obstacles they deem the main reasons for impeding ICT use, solutions they consider suitable, and future CALL projects planned in the agenda of the current administration. Meanwhile, the third tool used in this research is documentary research, which is used as a means to investigate the first question and explore CALL status in Algerian educational system. Reviewing literature that addresses ICTs in Algerian education and going through the main projects that aimed at integrating twenty-first century technologies into the Algerian classroom helps put matters into context and relate what is going on at the level of English department at Djilali Liabes University with that is taking place around the country. As for analysis methods, all interviews are conducted in English and audio-recorded, before being transcribed and analysed. An interpretive analysis method is used to analyse all the interviews, whereas the questionnaires are statistically analysed using Statistical Package for the Social

Science (IBM SPSS Statistics 21). Meanwhile, content analysis method is used with data gathered through documentary research. Now that we have briefly demonstrated the employed tools and the reasons for which they are used for, it is of a paramount importance to review the literature that addresses each one of them.

1.8.1 Questionnaire

Broadly speaking, a questionnaire is a means of data collection commonly defined as *“a set of questions on a topic or group of topics designed to be answered by a respondent.”* (Richards & Schmidt, 2002, p. 438). The data gathered through questionnaire are of a standardized nature, the fact that facilitates their classification, interpretation, and understanding resulting by that in the popularity of questionnaires as a common data collection tool (Pervez and Kjell, 2005). Questions are designed by a particular person for the sake of gathering information on a particular subject. The purpose of the questionnaire must be explained to the respondents and its items should be clearly and plainly stated in order to eliminate any ambiguities and motivate the respondents to provide more information (Akbayrak, 2000). The questions can be open-ended, or closed-ended; in the case of the former, the informants have the freedom of offering a range of answers. However, closed-ended questions require the respondents to choose one or more options as given by the questionnaire designer.

Like any other research tool, questionnaire has its advantages and disadvantages. As far as the former is concerned, questionnaires entail a range of beneficial aspects, including

- *They are cheap to administer. The only costs are those associated with printing or designing the questionnaires, their postage or electronic distribution* (Phellas, et al., 2011, p. 184).
- *They allow for a greater geographical coverage than face-to-face interviews without incurring the additional costs of time and travel. Thus, they are particularly useful when carrying out research with geographically dispersed populations* (ibid.).
- *Using self-completion questionnaires reduces biasing error caused by the characteristics of the interviewer and the variability in interviewers' skills* (ibid.).
- *The absence of an interviewer provides greater anonymity for the respondent. When the topic of the research is sensitive or personal it can increase the reliability of responses* (ibid.).
- *Many people are familiar with surveys, therefore the researcher does not need to explain to respondents how to fill it up.* (Akbayrak, 2000, p. 5)
- *Tabulation of closed-ended responses is an easy and straightforward process.* (ibid.)

As for the disadvantages, they can be summarized under a number of points. First, besides the fact that good survey questions are hard to formulate and take time to develop and hone (Akbarak, 2000), the researcher must be careful with the way s/he formulates them, as they need to be concise and clear since that s/he will not be present to clarify the meaning of the questions for his respondents (Phellas, et al., 2011). Second, given that large-scale written surveys include large samples of participants, the researcher cannot be completely in control of who fills the survey and whether it reaches the right individuals (ibid.). Third, written questionnaires can only cover individuals with a certain level of literacy and those who have access to the internet in the case of electronic surveys, excluding by that all individuals who do not meet these requirements (ibid.). Furthermore, not all respondents will turn in the questionnaires and certainly not all of them will respond to all the questions, researchers cannot know the reasons that drove them to do so, characteristics of these individuals, and how their non-response would affect the findings (ibid.; Akbarak, 2000).

The questionnaires used in this study (one for students and one for teachers) are not based on a single theory as the researcher relied on previous studies which served as valuable references during the design phase, mainly the study conducted by Nedjah (2010) and the one carried out by Bordbar (2010). However, it should be pointed out that besides combining questions from both studies, some aspects have been adapted to suit the particular context in which the current research is carried out. The employed questionnaires consisted of closed-ended questions, open-ended questions, as well as likert-scale surveys, all of which designed to gather different types of data and investigate different aspects of the current research.

1.8.2 Interview

Interviews are widely used research tool that are designed to obtain particular information from a target population. Most definitions refer to the interview as some sort of a conversation “...*where actors talk to a specific and conscious purpose.*” (Hul, 1985, cited in Akbarak, 2000, p. 1). In line with this is Channel and Kahn’s (1968) definition which regards interview as “*a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information, and focused by him on content specified by research objectives of systematic description, prediction, or explanation*” (cited in Akbarak, 2000, p. 1). Nevertheless, Duck and McMahan (2012) assert that interviews differ from regular conversations in terms of being (1) goal-driven, (2) question–answer, (3) structured, (4) controlled, and (5) unbalanced. Moreover, Thomas (2010) notes that interviews are more of an

oral quiz than a conversation as they are based on *“a set of pre-planned core questions”* (Thomas, 2010, p. 314).

Interviews vary in nature as changes at the level of objectives of the researcher as well as the design of the interview result in different types of interviews. First, unstructured interviews where the interviewer use open-ended questions that allow the interviewees to express their opinions freely (Thomas, 2010). The direction of this type of interviews is often unpredictable, as different interviewees will certainly steer the interview towards different ends, the fact that makes them time consuming and render the standardization and analysis of responses a tricky task for the researcher (Preece, et al., 2002, cited in *ibid.*). However, unstructured interview is regarded as an optimal option to suit questions to different contexts, investigate issues as they come up, and generate considerable amount of in-depth data (*ibid.*). The second type is structured interviews, which consist of *“a set of predetermined questions which are short and clearly worded”* (*ibid.*, p. 314). Questions in such a type of interviews are closed-ended and usually present the interviewee with a set of options to choose from (*ibid.*). Structured interviews are easy to conduct and their data can be easily standardized and analysed, as the same set of questions is used with all the interviewees (Preece, Rogers, & Sharp 2002, cited in *ibid.*). This type of interviews come very handy when the researcher have clear and specific predetermined goals (*ibid.*).

Third, semi-structured interviews employ both closed-ended and open-ended questions, thus combine features of both structured and unstructured interviews (*ibid.*). The interviewer use

“a set of pre-planned core questions for guidance such that the same areas are covered with each interviewee. As the interview progresses, the interviewee is given opportunity to elaborate or provide more relevant information if he/she opts to do so” (*ibid.*, p. 314).

This combination of different questioning techniques allows the interviewer to have a standardized data and at the same time enables him/her to investigate unforeseen issues (*ibid.*). At last but not at least, focus group interview that unlike the aforementioned types that are conducted one-to-one, this type is carried out through interaction among members of a group of people (*ibid.*). Being the least structured of all types of interviews, focus-group interviews capitalize upon group interaction to stimulate opinion exchange, in-depth discussion of different issues, group brainstorming, and help bring up issues that interviewees could not think of individually (Shneiderman and Plaisant, 2005, cited in *ibid.*).

Interviews are widely opted for as a research tool for being advantageous across a number of aspects that can be clustered under the following points

- *Interviews typically allow for more focused discussions and follow-up questions* (ACAPS, 2012, p. 5).
- *Individuals may offer in-depth information in interviews that they would not be able to offer through another research tool.* (ibid.)
- *The interviewer can observe interviewees' non-verbal cues (body language, facial expressions ... etc.) and get to form a better understanding of the target population* (Jonson & Christensen, 2004, p.19).
- *Interviewer can employ different questioning techniques (open-ended questions, visual aids, answer scales ... etc.) and use complex long questions as s/he will be present to help the participants understand the questions* (ibid.).
- *Additional questions can be used to collect further information about unforeseen issues.* (ibid.).
- *Interviews can generally be longer than when self-completion techniques are used as interviewees are less likely to be put off by the length or to give up halfway through* (Phellas et al., 2011, p. 183).

However, the aforementioned advantages do not deny the fact that interviews do entail a number of disadvantages that interviewers need to be aware of in order to overcome them. First, one of the main issues that encounter researchers who use interviews as a research tool is finding a time and place that suit both the interviewer and the interviewee (Jonson & Christensen, 2004). Second, being expensive, time consuming, and in some cases require travelling to different destination, interviews can only cover a limited sample of population and limit the geographical area of the survey (ibid.; Phellas et al., 2011). Additionally, interviews often result in diversified data that is hard to classify and analyse (Jonson & Christensen, 2004). Finally, interviewees may be prone to stage fright, be biased by the presence the interviewer, or abstain from discussing issues that they find personal or embarrassing as anonymity is absent.

The current research makes use of semi-structured interviews (one for teachers and one for administrators) that mainly consist of open-ended questions. This type of interview in particular is chosen because it provides the researcher with general guidelines to keep the interview on the right track without denying him the opportunity to investigate issues further when he deems that necessary. The nature of the current study's problematics, which are to a large extent unexplored ones, makes foreseeing all the aspects that need investigation and

predicting the direction the interview a tricky task. Therefore, being able to investigate unanticipated issues as they come up is also among the main advantages that promoted semi-structured interview as the appropriate research tool for this work.

1.8.3 Documentary research

Documentary research is one of the major tools used in social sciences fields. It refers to the study of documents tackling a particular phenomenon that the researcher aims to investigate (Bailey 1994, cited in Mogalakwe, 2006). Mogalakwe (2006, p. 222) defines documentary research as *“techniques used to categorize, investigate, interpret and identify the imitations of physical sources, most commonly written documents whether in the private or public domain”*. Despite the presence of other effective social research tools in the image of surveys and interviews, documentary research is still the most used tool due to its time and cost effectiveness as the researcher is spared some research process burdens such as project design, and data collection, analysis, and discussion (Ahmed, 2010). Judd et al. (1991, cited in Ahmed, 2010, p. 5) list three aspects that characterize documentary research methods, including

- *they rely entirely on the analyses of data collected for purposes other than those of particular studies in social relations;*
- *documentary studies often call for ingenuity in translating existing records into quantifiable indices of some general concepts;*
- *documentary studies are particularly susceptible to alternative interpretations for the natural events and their effects.*

Documentary research goes beyond the simple act of reviewing recorded facts to encompass systematic analysis and situating documents within a proper theoretical frame so that they serve the purpose of the study and can be understood properly (Coles, 1997; Ahmed, 2010), as according to Atkinson and Coffey (1997, cited in Ahmed, 2010, p. 2) *“Documents do not stand alone”*. Therefore, researchers are faced with the challenge of using documents in a way that qualifies them to be considered a reliable source (Ahmed, 2010). For the express purpose of effective handling of documentary sources, a set of control criteria are set by Scott (1990, cited in Ahmed, 2010, p. 3), they include

- *Authenticity: refers to the truthfulness of origins; evidence is genuine, attributions, commitments, sincerity, devotion, and intentions.*
- *Credibility: refers to the objective and subjective components of the believability of a source or message, whether the evidence is free from error and distortion.*

- ***Representativeness: refers to whether the evidence is typical of its kind or not, and whether it is representative of the totality of the relevant documents.***
- ***Meaning: refers to whether the evidence is clear and comprehensible. The ultimate purpose of examining documents is to arrive at an understanding of the meaning and significance of what the document contains.***

Then he later emphasizes that these “*criteria of authenticity, credibility, representativeness and meaning should not be regarded as distinct phases in assessing the quality of documentary sources.*” (Scott, 1990, cited in Ahmed, 2010, p. 3), as these interdependent criteria have no particular set order and are all equally important that none of them should be emphasized for the exclusion of the rest (Ahmed, 2010). Documentary research is known for allowing the researchers a number of advantages that cannot be offered by other research tools (ibid.). The main advantage of documentary research is its cost effectiveness. It also spares the researcher considerable amounts of time and effort, as all the data s/he relies on are already gathered and classified, the fact that limits his/her role to data analysis only (ibid.). Additionally, given that data collection process is carried out by other researchers, documentary research relies on data unaffected by researchers’ biases (ibid.).

However, despite its strengths and undeniable advantages, documentary research method is criticized over a number of points. First, the use of documentary research means using data that are gathered for another purpose than that of the study (ibid.). Second, data used in documentary researcher might be affected by the original researcher’s biases and views, therefore fail to portray the real situation (ibid.). Moreover, the researcher might opt to choose particular sources and overlook others depending on his/her subjective norms (ibid.). Equally important, some documents, especially the ones found on the internet, can be easily manipulated by a particular party, especially powerful economic and political groups that try to exert their influence through manoeuvring facts in their favour (ibid.). The current study opts for documentary research as a tool to investigate a number of issues related to Algerian educational scene, most important of which are the current state of CALL in Algerian educational system and challenges that hinder its normalization, and that through reviewing governmental documents, academic and scientific publications, and newspapers articles. Documentary research is particularly important in our case because it allows the researcher to form a holistic image of the issue at the national level and track the problem back to its roots and how it has been handled by the succeeding governments and responsible entities.

To sum up, the researcher combined questionnaire and interview as they have differing but still complementary strengths and weaknesses (Harris & Brown, 2010). Kendall, (2008, cited in *ibid.*, p. 2) states that “*While questionnaires can provide evidence of patterns amongst large populations, qualitative interview data often gather more in-depth insights on participant attitudes, thoughts, and actions*”. While questionnaire is viewed as an objective tool that can yield generalizable results (Harris & Brown, 2010) and allow the researcher to measure different phenomena with considerable accuracy (*ibid.*), the interview on the other hand allows further questioning and clarification that help the researcher elaborate more ideas from respondents and widen his perspective concerning the discussed issues (*ibid.*). Meanwhile, documentary research allows the researcher to shed light on issues that cannot be investigated otherwise. It also allows putting the results of the regional study in a national context the fact that permits better understanding of the investigated issues.

1.9 Sample Population

As the current work’s scope is limited to investigating CALL normalization at our department, all the informants are current students and active faculty members at the level of English language department at Djilali Liabes University at the time of conducting the study. The present thesis investigates the total number of 19 teachers; almost 65% of them are males whereas female teachers represent around 35%. Their ages range between 24 years old and 64 years old, but it should be pointed out that 74% of informants’ ages range between 30 and 49. The teaching experience of around 47% of teachers who took part in the survey and the interview ranges between six and ten years, whereas the second major category is represented by teachers who have a working experience ranging between one and five years (31.5%). It is also worth pointing out that 58% of our respondents are Ph.D. Holders whereas 37% of them are Doctoral students who already hold an MA. degree. So, it could be concluded that the majority of respondents who took part in this study are relatively young teachers with an average period of working experience.

The original intention of the researcher was to conduct interviews with all the teachers but due to tight schedules and availability issues, some teachers opted for a questionnaire as a more comfortable means to take part in the study. As for our second category of population, it consists of 134 randomly chosen students with ages ranging between 18 and 24 years old. It is worth pointing out that students between the age of 20 and 21 combined represent 50% of the total number, as all the students who took part in the survey are either third year students or

Master students. Female students form the sweeping majority of 86%, which is the result of random distribution of questionnaires. Meanwhile, the administration is represented by the vice-dean of Faculty of Letters, Arts and languages and the head of English Language Department at the same faculty, with whom interviews are conducted to explore the perspective of the administration on the investigated issues.

The researcher opts for these three categories of population in order to explore the issue from different angles and investigate the problem of CALL absence from the points of view of all the involved stakeholders. Conducting interviews as well as using questionnaire with teachers are imperative to determine their attitudes towards CALL integration and pinpoint the issues that impede them from integrating educational technologies into their practices. As for the students, determining their attitudes towards the integration of CALL through a randomly distributed questionnaire is among the major objectives of the present work. Meanwhile, conducting semi-structured interviews with the vice-dean of the faculty and the head of English Language department helps forming an idea about the administration's stance on the absence of ICTs and their current efforts and future plans to address the issue.

1.10 Limitations

This study faced a number of obstacles that rendered the process of data collection more troublesome and caused the passing of a number of deadlines previously set by the researcher. The main hurdle that the researcher faced is teachers and administrators unavailability, as interviews were cancelled and postponed several times. The second major impediment is respondents' unwillingness to respond to the administered questionnaires, as out of 25 questionnaires directly handed to teachers, only 12 were turned in, resulting by that in reducing the total number of teachers' population sample significantly. The problem exacerbated even more with students, as out of 250 questionnaires originally distributed by the researcher, only 134 questionnaires were returned. Meanwhile, the scarcity of literature and reliable sources that precisely report the status of ICT in Algerian tertiary education was a major issue, as neither the responsible ministry nor other independent agencies provide up-to-date statistics and figures. Adding to that, the abstinence of a number of Higher Education and Scientific Research Ministry officials from giving any interviews or responding to any form of questionnaires, as all researcher's attempt to reach them failed despite the fact that the purpose of the study was clearly stated and the questions were sent beforehand.

1.11 Conclusion

The current chapter is intended to provide the readers with an overall image of the state of CALL at the national level and inform them about the design of the current research. The first section of this chapter is a situational study devoted to the discussion of Algerian educational scene to help provide the readers with a clearer image of the larger context of the current work, and that through shedding the light on a number of related aspects and issues. After tackling the Algerian educational system and its different stages in detail, this chapter reviews the status of EFL in Algerian classrooms and the issues that it faces be they unrealistic syllabus objectives, overloaded syllabi, or overlooking the teaching of communicative skills, especially speaking. Then, the researcher tries to draw a picture of the status quo of ICTs in Algerian educational settings and all the endeavours taken by responsible entities to modernize this vital sector. After that, an analysis is conducted regarding the issues that face the integration of CALL and the problems that led to hindering major projects and initiatives, most important of which are the absence of a realistic long-term strategy and the lack of cogent planning. Then, the second section of the chapter is devoted to discussing the methodology of research upon which the current work is premised. As it has been pointed out earlier, the current work is a descriptive study that makes use of quantitative and qualitative research methodologies. Both methods are complementary, as the weaknesses of one method are made up for by the strengths of the other one. Furthermore, for the sake of triangulation and ensuring the gathering of valid and reliable data, the researcher employed three different research tools, namely questionnaire, interview, and documentary research, each of which is used for a particular purpose and with a different category of sample population. Finally, a description of the different groups of the sample population that took part in the current work is provided.

CHAPTER TWO: *Review of Literature*

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2.1 Introduction

Review of literature chapter is a combination of four different sections, each of which tackles one of the main aspects upon which the current work is premised, in a move intended to provide the readers with the needed theoretical background knowledge to follow the present research as it develops. The first section addresses Computer Assisted Language Learning, as the researcher attempts to demystify this concept through exploring its different definitions, referring to the history of CALL, tackling its different applications in EFL classroom, addressing issues that hamper its incorporation, and reviewing advantages and disadvantages associated with it. The second section is dedicated to reviewing the concept of attitude as exploring this construct should help the researcher better interpret data that he gathers. This section presents a definition of the term attitude, reviews its structure, formation, and functions, and addresses its effect on teachers and how it can be used to predict behaviour. The third section reviews the phenomenon of change resistance and how it affects the introduction of innovative practices in the image of CALL. This section covers the process of change resistance, addresses the factors that lead people to accept or reject change, and looks into ways how to overcome change resistance. Meanwhile, the last and fourth section is an attempt to help the readers explore the relatively new concept of normalization, as forming a clear perception of what constitutes a state of CALL normalization is imperative for the current work.

2.2.1 Definition of CALL

In a world where technological advancement has reached all new levels of development across all fields and domains never dreamt of before, keeping education separate from this revolution is simply impossible. With the introduction of new technologies to the classroom in general, and to language classroom in particular, came along a new term to label this phenomenon, which is “Computer Assisted Language Learning” or simply CALL. Developed in the sixties, the term was first used during the seventies, and since then many definitions were delivered. CALL is defined by Levy (1999, p. 78) as “*The search for and study of applications of the computer in language teaching and learning*”. Furthermore, CALL is not a method, but rather an approach that makes use of the computer and other technological aids for language teaching and learning (Ryait, 2010); addressing this point, Davies (2010, p. 261) suggests that CALL is

“...an approach to language teaching and learning in which computer technology is used as an aid to the presentation, reinforcement, and assessment of material to be learned, usually including a sustainable interactive element”.

Even though, the word “computer” is present in almost all the definitions (Beatty, 2003; Levy, 1999; Cameron, 2002 ; Merrill et al., 1989), Kouni (2006) corroborates that CALL is not only confined to computers since that it includes as well all the different forms of technology used for the purpose of enhancing teaching and learning experience. Levy and Hubbard (2005) note that CALL goes beyond the devices labelled computers to encompass all peripheral devices related to them which may include mp3 players, DVD players, data projectors, mobile phones, tablets, iPads, smart boards, internet ... etc., including by that virtually every piece of technology used for the purpose of facilitating and/or enhancing the teaching and learning experience.

Discussing the different situations that can be labelled CALL, Hubbard (2004a, para. 1) argues that it involves:

- *One student on one computer with interactive software;*
- *two or three students on one computer with interactive software;*
- *students on computers interacting with other students (computer-mediated Communication);*
- *students on computers working with web-based language content;*
- *students interacting with one another and a teacher through a computer (online class);*

- *a teacher using a single computer and large monitor or data projector for class instruction;*
- *and other options.*

The aforementioned situations set by Hubbard (ibid.) leads us to assume that CALL involves any form of ICT incorporation in an educational environment, be it in or outside brick-and-mortar classroom. Therefore, CALL may involve any interaction between teacher, student, and technology (or at least student and technology) for the purpose of enabling, facilitating and/or enhancing teaching and learning processes. As for the characteristics that should be present in any technological aid designed for EFL classroom, Clifford and Ganoien (2008, p. 38) indicate that

“... a CALL program, in order to support language acquisition and proficiency must be capable of interacting with the learner, of recording, analyzing, and interpreting learner output, and of providing feedback for correction, all in a context of meaningful tasks with authentic input.”

Therefore, not any random piece of technology or uninformed employment of ICT in a teaching or learning situation qualifies to be referred to as CALL, thus CALL must be able to carry out tasks that enrich and/or reinforce learning and teaching experience. The aforementioned characteristics are also essential for the process of implementing CALL as it is described by Gündüz (2005), who suggests a number of steps to be taken into consideration by CALL practitioners. First

“[First] The learner is ... presented with a rule and some examples”, then he “answers a series of questions which test her/his knowledge of the rule”, after that “the computer gives appropriate feedback and awards a mark which may be stored for later inspection for the teacher”

(ibid., p. 197).

Stages that seem to be the same as those applied in any ordinary classroom, yet with the presence of computer programs, learning material is presented in an interactive way, feedback is individualized and directly delivered to every student according to his/her performance, and marks are immediately granted and gathered for later inspection, saving by that the teacher a substantial amount of time and effort which can be invested more effectively to cater for other rather urgent students' needs.

Similarly, Merrill (1989, p. 121) states that CALL is mainly based on “*the interaction by displaying information, getting response, and then providing feedback and subsequent follow-up instruction to be tailored to the needs of the learner*”. Though this definition covers a wide array of currently used educational software, it is more appropriate for referring to whole package tutor software rather than other tools that are designed to carry out one single task without compromising their ability to fit effectively within teachers and students’ practices (both tutor software and tool software will be tackled in detail at a later section). Additionally, Ryait (2010, p. 19) opines that the main two-standout features of that should be present in any piece of CALL are

- *Focus on individual learning, i.e., it can be individual-centric and customized to individual needs as per student/teacher needs.*
- *Bi-directionality i.e. it allows students and teachers to get involved in two-way interactions while going through the learning process.*

Two features largely missed in nowadays EFL classroom; first, students’ number per classroom makes it almost impossible for teachers to pay the required attention to the individual needs of every learner and cater for them. Secondly, in the vast majority of traditional EFL classrooms communication is dominated by one side which is the teacher, yet the reciprocal nature of Computer Assisted Instruction may put an end to this issue, as it is pointed out by Kasper et al. (1999), who claim that the integration of technology into pedagogy “...*involves students in some authentic tasks, leading to student-centred cooperative learning as well as promoting both teacher-student and peer interactions*” (p. 11), allowing by that the students more time to interact and practice what they have learned in a stress-free environment (Zinovjeva, 2005).

Technological innovation provides CALL practitioners with a wide variety of devices and applications to choose from. Yet, as Warschauer and Healey (1998) state it, its application goes beyond purchasing computing equipment and software and making them accessible for teachers and students, since it should be well planned and strategically applied to reach particular teaching and learning objectives away from the integration of technology for the sake of integration per se. As Ranasinghe and Leisher (2009) view it, CALL integration starts when the teacher plans a lesson that uses technology as a medium of delivery bearing in mind that these technological aids are intended to support the curriculum rather than dominate it, therefore, “*effective technology use, like any tool use, is contextual*” (Wzakresie, 2007, p. 6). Moreover, creating a blended learning environment where classroom-based curriculum and CALL are strategically and interchangeably used is pivotal for a learning experience where

learners have the chance to benefit from the best of both worlds (Green, 2013).

Along with the integration of CALL in any classroom, teachers should consider changing their teaching styles as well as their views of what the classroom is all about (Kerr, 1996). Playing the role of a catalyst, CALL introduction to EFL classroom came in tandem with change of views and roles played by the stakeholders in the teaching and learning process. In a technology-enhanced environment, learners are more responsible for their own learning and even more independent, because the teacher is no more the only source of knowledge; students, with computers and internet connection at their disposal, are supposed to gather the needed information, analyse it, reflect on it and negotiate meanings. On the other hand, the teacher's role shifts to a *“facilitator, a resource person and a counsellor rather than the only authority and decision-maker”* (Lam & Lawrence: 2002, p. 305), moving by that towards a more student-centred classroom where teachers can be involved in a number of ways including

- *As researchers: into second language acquisition, human-computer interaction, what works for CALL.*
- *As consumers of CALL: software for class use or building web activities into course work.*
- *As directors: helping students find and use supplementary CALL materials or web resources.*
- *As managers of computer-mediated communication among learners in and out of class.*
- *As software or web developers, either "from scratch" or adding new materials to existing templates.*
- *As coaches to help students develop software, websites, and general computer literacy.*
- *As CALL experts for your program, helping other teachers and administrators with CALL implementations.*
- *As CALL professionals, consulting on external projects, doing software reviews for journals, making conference presentations, writing papers, interpreting and applying CALL research, and/or providing input to the field at large.*

(Hubbard, 2004, para. 9)

What can be deduced from Hubbard's (ibid.) list of teachers' tasks is that CALL incorporation does not only affect teachers' practices, but it also gets them involved in a wider spectrum as the effect of their contributions reaches an entire community way beyond the boundaries of the single classroom. These roles have been amplified and some of them came to existence thanks to the internet that claimed a pivotal position in the field of CALL, especially with the advent of a number of web-based technologies most important of which are Web 2.0 and Cloud storage systems. As Ryait (2010) points it out, CALL *“... is not a method in itself but an approach used*

for teaching and learning language over the internet” (p. 20). The internet has the ability to bring real life experience into the classroom, offering by that what the other media could not offer, which is real time communication with peers and even native speakers, and motivating the learners to use the target language and make more efforts to produce it, especially in the absence of a supportive learning environment beyond the boundaries of the brick-and-mortar EFL classroom (Jeong, 2006).

What makes CALL different is not the use of technologies itself but the way these technologies are employed, as it is confirmed by Bailey (1996, p. 73), who maintains that “...*technology is essentially impotent without creative and imaginative application*”, an added value that can only be brought to the table by the practitioner, whose discretion of the situation determines how and when CALL integration should take part, since that “*it is how we use these tools that will ultimately affect our students and the foreign language curriculum*” (Armstrong & Yetter-Vassot, 1994, p. 476). Investigating factors affecting EFL teachers’ use of technological aids in the Korean classroom, Park and Son (2009) clearly states that the role of technological aids in EFL classroom is significant, yet teacher’s quality is even of a more importance.

2.2.2 Genesis of CALL

The constant evolution and change witnessed by both pedagogical theories and technology has had a direct impact on CALL, which has been trying to keep up with this change. The fact that resulted in the emergence of three different types of CALL that came at different eras (Lee, 2000). These three stages were first listed by Warchauer (2000), who attempted to classify the chronological changes that marked that interplay of pedagogy and technology since the emergence of the later. Therefore, he has identified three different stages each of which lasted for roughly a decade. Warchauer’s (2000) classification is based on number of aspects, namely the type of employed technology, language teaching and learning approaches that dominated eras in question, ELT and ELL philosophies, teaching and learning areas where technology is used, and the ultimate objective behind employing it.

Stage	1970s-1980s: Structural CALL	1980s-1990s: Communicative CALL	21 st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English-Teaching Paradigm	Grammar Translation and Audio-lingual	Communicative Language Teaching	Content Based, ESP/EAP
View of Language	Structural (a formal structural system)	Cognitive (a mentally- constructed System)	Socio-cognitive (developed in social interaction)
Principal Use of Computers	Drill and Practice	Communicative Exercises	Authentic Discourse
Principal Objective	Accuracy	and Fluency	and Agency

Table 2.2.1: The Three Stages of CALL (Warchauer, 2000, p. 63)

2.2.2.1 Behaviourist CALL

Being used in language teaching since the 1960s, CALL was first envisioned during the 1950s as *“a possible method for formalizing a standard language learning format”* (Arnold & Leitzman, 2013, p. 2). The era during which CALL was first introduced into the scene of language learning, pedagogy was heavily dominated by the behavioural theories. Consequently, the first prototypes relied predominantly on drills and rote learning under principle of stimulus response formation. Even though, the 60s and the 70s witnessed the presence of another method as it was mentioned by Davies (1997), who states that during that era there was also a *“rapid growth in language labs, bolstered by the then fashionable audio-lingual approach to language teaching”* (p. 65), yet this did not affect the dominance of behaviourism over CALL. This dominance can be clearly seen in CALL’s first pioneering projects, some cases in point are the PLATO project (Programmed Logic for Automatic Teaching) developed at the University of Illinois and the Computer-Based Foreign Language-Teaching project at Stanford University (O’Shea and Self, 1983), which were designed under the influence of behaviourism, which believed that the repeated exposure enhances learning.

These projects provided students with materials to practice according to their proficiency level along with feedback and remediation when needed (Hubbard, 2009). Running on its own special hardware, these tutorial programs offered vocabulary drills, brief grammar explanations and drills, and translation tests in a method largely referred to as drill-and-practice or 'drill-and-kill' (Rogers, 1985). For the advocates of Behaviourist CALL, the computer was

viewed as “*a mechanical tutor which never grew tired or judgmental and allowed students to work at an individual pace*” (Warschauer, 1998, p. 57); being a machine, the computer never gets tired nor bored of repeating the same drill, and its pace can be adjusted to suit that of the learner. The proponents also argued that programs like PLATO provided “*the more mechanical types of vocabulary grammar drill, thereby freeing class time for more expressive activities*” (Levy, 1997, p. 15) and allowed the teacher to manage class time in a more productive way.

2.2.2.2 Communicative CALL

With the invention of microcomputers came along a new era in CALL extending from the late 70s up to the early 90s known as Communicative CALL (Warschauer & Healey, 1998). Feeling that the “*drill and practice programs of the previous decade did not allow enough authentic communication to be of much value*” (Warschauer, 1996, p. 18), proponents of the new method believed that much more emphasis should be put on “*communicative form of teaching with more time to be allotted to interaction between students and teachers and active real time feedback*” (Ryait, 2010, p. 9). As it advocated the use of form rather than the form itself, this approach stemmed from “*cognitive theories which recognized that learning was a creative process of discovery, expression, and development*” (Meihami & Varmaghani, 2013, p. 51). Rejecting behaviourist approach at both theoretical and pedagogical levels, communicative CALL advocates stressed the importance of a number of factors, namely the implicit instruction of grammar, encouragement of learners to come up with original utterances instead of prefabricated forms, acquisition of the needed skills of effective information search, and the ability to adapt and respond to changes (Meihamiand & Varmaghani, 2013; Warschauer & Healey, 1998).

The first models of Communicative CALL were used as tutors playing the role of stimulus that encouraged the learners to interact, discuss issues, and think allowing them more control over the provided activities (Taylor, 1980). Whereas, the later model programs were tools that “*enabled students to understand and use of language through word processing, spelling and grammar checking*” (Wang, 2008, p. 135). Personal computers allowed both group as well as individual work; therefore, software were developed in form of language games, simulations, reading and text reconstruction, word processors, desk-top publishing, and spelling and grammar checker programs, all coming in non-drill and learner friendly format (Meihami & Varmaghani, 2013). All this emphasis on communication somehow marginalized the computer and exposed communicative CALL to the same critics faced by its behaviourist predecessor, that is the use of the computer was in an ad hoc way and thus “*finds itself making a greater*

contribution to marginal rather than central elements” of the language learning process (Kenning & Kenning, 1990, p. 90).

2.2.2.3 Integrative CALL

The late 1980s and early 1990s, cognitive view of communicative language teaching was abandoned in favour of a then new trend known as socio-cognitive theory. The supporters of this newcomer endorsed the use of real language in a meaningful and authentic way, and more importantly the integration of all the four skills (listening, speaking, writing, and reading) and technology more fully instead of tackling each one of them separately, the fact that gave birth to integrative CALL (Warschauer & Healey, 1998). The other two factors that equally contributed to the emergence of this type of CALL are the remarkable development witnessed by multimedia and the availability of internet, which became a household phenomenon accessible to a broad range of student (Warschauer, 1996). Those late changes in technology made text, graphics, sound, animation, and video all available in relatively inexpensive personal computers, features also referred to as “hypermedia” (Meihami & Varmaghani, 2013).

The revolutionary hypermedia along with the internet made it possible for CALL practitioners to take the combination of technology and language learning to levels never dreamt of before. As a result of having access to a wide range of information resources and real time communication tools, students are expected to get acquainted with the use of technology in their language learning process (Warschauer & Healey, 1998). Integrative CALL was founded upon a number of principles that include:

- *Student/learner-focus.*
- *Meaningful purpose.*
- *Sufficient level of stimulation (cognitively and affectively).*
- *Multiple modalities (to support various learning styles and strategies).*
- *High level of interaction (student-computer and teacher-student).*

(Greene, 2008, p. 63)

Integrative CALL made it possible for teachers to design and create programs that cater for their students’ needs and enhance their learning experience (Warschauer, 1998; Warschauer, 2006). Yet, this advantage turned out to be integrative CALL’s biggest problem, as teachers found coding and program writing a very tricky area that most of them could not master leading to a great dissatisfaction with the flimsy models of software created then (Ryait, 2010). Another

card played by the proponent of the third generation of CALL was its interactivity, yet once again, the quality of software that could not live up to the full potentials provided by the hardware let them down. Thus, programs could check the form in terms of correctness; however, it fell way behind when it came to assessing other rather important areas such as appropriateness and deciding upon the needed remedial work (Ryait, 2010).

To sum up, Warschauer (2000, p. 64) states that he

“did not want to suggest that these stages have occurred sequentially, [...]. At anyone time, any of these may be combined for different purposes. However, there has been a general trend or development over the years, with new ideas and uses of computers being introduced in combination with those previous”.

Warschauer (ibid.) made it clear that the three stages he came up with do not have clear starting and ending points, since the different phases may overlap with one another, or even be combined or used interchangeably according to technological advancement or for pedagogical considerations. As technological development and language teaching views are in a constant state of flux, the aforementioned stages represent part of CALL’s history but not the whole story as other new CALL forms are definitely on the cards, especially in the second decade of the twenty first century where constructivist theories are reshaping language classroom.

2.2.3 CALL in Teaching Language Skills

The idea of using technology to improve and support teaching and learning experiences and make them more efficient has lured educators for many decades. Thus, many attempts have been made in this regard using multimedia, internet, speech recognition technologies and other types of software and hardware to teach the various components of language including vocabulary, grammar, reading, writing, speaking, listening, and even culture (Zhao, 2003). This integration of technology has proven beneficial in many ways, as success ranged from making language learning experience more fun to enhancing learners’ intrinsic motivation (Meihami & Varmaghani, 2013). After decades of using computers to provide supplementary exercises and extra-classroom practice, there is a growing tendency nowadays towards integrating computer more fully to be a part and parcel of regular EFL teaching and learning environments (Jafarian et al., 2012), the fact that resulted in an abundance of research that tried to investigate how CALL could contribute to the teaching of different aspects of language. Yet it is worth pointing

out that the integrated nature of language made it impossible for researchers to tackle different aspects of language separately.

2.2.3.1 CALL and Speaking Skill

One of the widely endorsed technologies in speaking instruction is Computer-Mediated Communication software (CMC) such as text chat, voice chat, and video conferencing technologies that enable learners to make synchronous and asynchronous communication at individual, pair, and group levels (Abuseileek, 2008; Liu, 2013). CMC can be operated at the level of Local Area Networks (LAN) allowing interaction between individuals within a close range level, or it can make use of the internet to expand the area that can be reached by the users. Despite the fact that some CMC applications like email use written text as communication medium, some studies proved that *“even working with text-based chat interactions can improve speaking proficiency”* (Payne & Whitney, 2002, p. 73). The integration of the internet proved beneficial as it allows interaction between not just EFL learners, but also between EFL learners and native speakers, providing them with genuine opportunities to improve their pronunciation, develop their communication skills, and widen their vocabulary repertoire.

Pronunciation is one of the areas entailed under speaking skill that draws a considerable attention from educators and software developers resulting in the development of numerous software, yet the most outstanding technology in this regard is Automatic Speech Recognition (ASR). ASR Software are increasingly used in education to assess learners’ oral abilities and pronunciation proficiency levels (Busà, 2008), the assessment process is carried out in terms of five phases:

- 1. Speech recognition: The ASR engine translates the incoming speech signal into a sequence of words on the basis of internal phonetic and syntactic models.*
- 2. Scoring: This phase makes it possible to provide a global evaluation of pronunciation quality in the form of a score.*
- 3. Error detection: The system can locate the errors in the utterances and indicate to the learner where s/he makes mistakes.*
- 4. Error diagnosis: The ASR technology identifies the specific type of error that was made by the student and suggests how to improve it.*

5. ***Feedback presentation: This phase is fundamental because the learner will only be able to benefit from all the information obtained by means of ASR if this is presented in a meaningful way.***

(Neri et al, 2003, p. 1165)

Lately, ASR software come equipped with another technology known as Open-Response Systems, which check correctness of the used vocabulary, grammar, and even conversational skills without restricting learners' utterances (Busà, 2008). Yet, many scholars argue that ASR is still not developed enough to be integrated into the classroom, thus according to Neri et al. (2001), the majority of ASR software are unable to understand up to 25% of non-native speakers utterances, the fact that results in the provision of unreliable feedback. Yet recent applications such as Carnegie Speech have been proved more efficient as they ***“have been able to pinpoint specific phonemes within a word or phrase that need work and offer targeted explanations and exercises for improvement”*** (Hubbard, 2009, p. 7). Considered one of the most promising technologies, ASR and Open-Response Systems are expected to develop considerably under the upcoming era of Intelligent Computer Assisted Language Learning (ICALL).

As learners' speaking proficiency increases, more attention should be given to prosody, i.e., intonation, stress, pitch and rhythm (Witt & Young, 1997). In tackling this issue, software developers resorted to a technology known as speech visualization. This type of courseware provides graphic representation of different prosodic aspects through different forms of waves and curves. Speech visualization software enable teachers to compare acoustic properties of their students' oral production to that of a native speaker and locate the prosodic patterns in which learners fail (Kim, 2006). Moreover, another language-learning tool that is getting more recognition is Talking Heads. Incorporating speech technology with gestures and facial expressions, Talking Heads serve as a virtual tutor who engages in pronunciation, conversation practice, and reading activities (Hismanoglu & Hismanoglu, 2011). Talking Heads are regarded as learner friendly and highly motivating tool, which provides a friendly and stress free environment for learners to practice their speaking and communication skills. Learners may also find electronic dictionaries particularly useful, as some of them are equipped with a pronunciation feature that enables the learner to check the right pronunciation (British and American pronunciation) of the word or even the phrase. Equally important, there has been an emphasis on the interaction that takes place in CALL environment, especially in pair and group work, since that learners tend to interact while using computers and other forms of technology. This somehow side effect of CALL environment provides students with authentic situations to

practice their oral skills as they express and respond to opinions and views, establishing meaningful communication opportunities (Mueller-Hartmann, 2000; Gu, 2002).

Many researchers argue that pronunciation teaching materials, like the rest of CALL, still have a long way to go, thus, as pointed out by Seferoglu (2003), software are limited to segmental aspects (i.e., individual sounds) of the language rather than supra-segmental aspects and connected speech, hence they still ignore the fact that language is best learned when presented or practiced in terms of chunks rather than individual items or words. Another heavily criticized aspect of computer assisted pronunciation software is *“their widespread reliance on decontextualized language and lack of grounding in the realities of actual communication”* (Elimat, 2014, p. 26); language is meant to transmit messages in terms of purposeful and authentic communication and not through rote practice of pre-prepared forms and sentences. Having a long way to go, computer assisted pronunciation instruction software remain an unexplored CALL field that needs more attention from both educators and software developers.

2.2.3.2 CALL and Writing Skill

Writing tools are CALL software developed to assist learners throughout the different stages of writing process. A number of studies affirm that CALL environment has a positive effect on students' compositions as it helps them prepare the layout, organize and present documents, and check for grammar and spelling mistakes (Sullivan & Pratt, 1996; Liu, 2013; Jafarian et al., 2012). Meanwhile, Hyland (1993) stresses learners' need to revise less when they use a computer. Being relatively a low-tech tool, did not prevent Word-Processors (WP) from being one of the most effective and *“...perhaps the most accepted and universal use of computers in education today”* (Hyland, 1993, p. 21). WP software entail a bunch of tools each one of which designed to assess a different aspect of writing, as it entails spelling checkers, thesauri, dictionaries, style checkers, and grammar checkers (Levy, 2003). Concerning the way WP software operate, Barrass (1995) explains that they

“... automatically format(s) text ; may provide a choice of founts; inserts running heading and page numbers; may enable one to check spelling, syntax, and grammar; may provide advice on the choice of words and on the use of words, and may provide a thesaurus.”

(p. 97)

WP software enable the learner to make the necessary changes at any writing stage without the need to rewrite everything, and help draw learner's attention to mistakes and shortcomings as

soon as they occur and provide him/her with the appropriate suggestions and feedback (Brookes & Grundy, 2000). Pointing out the benefits of WP applications, Wahl (1996) notes that

- *Text can be scanned into the computer and enlarged, respaced, underlined or coloured, to make it more readable.*
- *The word processor's cut and paste, drag and drop, mark and format features, simplify revisions and the production of a clean product becomes a push-button affair.*
- *The icon-based features of the Windows based word processors further alleviate the need to keep text-based information in memory.*
- *The simplicity of spell checkers and on-screen thesauri encourage the student to polish up his work.*
- *Some word processors allow the teacher to comment on the student's work through voice annotations. This can convey the encouraging tone of the comment as well as making its content available through another channel.*
- *Using a word processor forces a step-by-step approach to text. This improves organizational skills and disciplined thinking.*

(pp. 4-5)

Another widely used CALL writing tool is the email, an asynchronous form of communication that provides learners with purposeful and authentic communication opportunities to practice and express their ideas in a written form. Referring to the email, Heap (1993, cited in Jafarian et al., 2012) maintains that it is “...*very realistic form[s] of communication because it is a real conversation about real, relevant topics with real people*” (p. 24). Chat is the synchronous form of email, which allows communication in real time, a tool that “*cultivates the ability to think and compose spontaneously*” (Heap, 1993, cited in Jafarian et al., 2012, p. 140). It is considered to be a helpful tool for increasing the chances of interaction between EFL learners and native speakers especially for those who cannot physically travel to English speaking countries (Wahl, 1996). Both email and synchronous chat help enhance communication skills (Peterson, 1998, cited in Jafarian et al., 2012), provide opportunities for sharing and collaboration (Wood, 2001), and develop critical thinking skills (Sergeant, 2001). Another major tool in writing instruction is the blog, which represents a virtual platform where learners can publish their writing for an audience and receive feedback. A number of studies examined the effect of blogs on students’ writing and concluded that they reduce writing apprehension (Supyan et al., 2010, cited in Amir et al., 2011), promote collaborative learning and peer instruction (Izham, 2008; Godwin-Jones, 2006, cited in Amir, 2011), encourage feedback

provision (Godwin-Jones, 2006, cited in Amir, 2011), and develop students' persuasion and argumentation skills (ibid.).

A similar tool to blogs is the wiki that is basically a virtual space where students present information about a particular topic (Sweeny, 2010). However, the wikis allow student to collaborate on the same piece of writing as different individuals can all add, edit, and omit parts of the same piece writing, the fact that promotes collaborative learning and constructive feedback provision (ibid.). Additionally, the fact that the wiki is intended to be read by a real audience, it hones students' revision and editing skills as they are urged to conform to the standards of academic writing, pay close attention to grammar, spelling and punctuation, and avoid plagiarism (Klimova, 2011). Similarly, cloud computing is another technology that enables different individuals to work collaboratively on the same piece of writing or project without the need to be physically present at the same place. Social media has also been adopted for instructional purposes as Sweeny (2010) reports the use of Instant Messaging to turn in summaries of passages assigned by the teacher. Writing instruction software are relatively in the lead when compared to the other skills, since writing software, unlike the rest, could make a fair use of what available technologies have to offer. Moreover, there are arguments that writing software, especially writing style checkers, are another area of CALL that is expected to thrive with the development of the blooming ICALL.

2.2.3.3 CALL and Listening Skill

Despite the fact that it represents 50% of interactions' time, listening is so marginalized by researchers that it is referred to it by Flowerdew and Miller (2005, p. 11) as "... *the Cinderella of the four macro-skills*". Teachers have always tried to make use of the available multimedia to teach listening skill, especially videos portraying everyday situations acted by native speakers. Basanta (2000a cited in Jesús & Mayor, 2009, p. 112) notes that the use of digital videos "*can and does enhance language teaching by bringing the outside world into the classroom, and in short making the task of learning a more meaningful and exciting one*". Furthermore, if the task is planned carefully and takes learners' proficiency into consideration, Basanta (ibid.) argues that digital video has other advantages such as "*1) authenticity; 2) motivation, interest and confidence; 3) the sociolinguistic and pragmatic level of language; 4) nonverbal features, such as gestures and body language; 5) active involvement and participation; 6) and real vocabulary acquisition*". It is advisable for teachers to use a captioned version of the digital video after exposing the learners to a non-captioned one, in order to ensure that learners develop their listening strategies first,

then achieve full understanding of the video by watching the captioned version as many times as they need to (Jesús & Mayor, 2009).

In 2004, a collaboration between “Apple” and “iPod” gave birth to podcast (Robinson & Ritzko, 2009). Podcast refers to downloadable audio and video multimedia files posted on the internet that can be played on the computer and other portable media players (e.g., mobile phones, tablet and iPods) (Liu, 2013). Many studies has been conducted using podcast as a tool for developing and enhancing learners listening skills (Artyushina et al., 2011; Ashraf et al., 2011; Hew, 2009; McGarr, 2009), and they all reached one conclusion which is podcasts are remarkably effective. Therefore, nowadays it is a common trend among universities to deliver “*supplementary lecture materials for campus-based students*” (Copley, 2007, p. 388) in a form of Podcasts. They are not just useful for in class practice but also for promoting self-studying by raising “*learners‘ awareness of suitable, individual, ways of perfecting listening skill that promote language learning*” and help them “*realize that listening skills can be improved through practice by their own choice*” (Liu, 2013, p. 56).

In addition to myriad of online websites, there is an increasing number of software and applications that provide listening materials along with questions to test students’ listening comprehension. According to Cárdenas-Claros and Gruba (2007), teaching and learning listening skills in a CALL enhanced environment provide both teachers and learners with a variety of backup elements including

- *transcripts and subtitles to read along while listening to aural texts;*
- *cultural notes to understand where aural text is contextualized;*
- *word definitions presented through glossaries or online dictionaries to look up unknown words;*
- *audio control functions (rewind/ forward/ pause) to replay complete or partial segments of the aural materials;*
- *still/dynamic pictures and videos to have a visual representation of the materials;*
- *and feedback to assess task completion and learning outcomes.*

(ibid., p. 118)

Furthermore, CALL practitioners hold high hopes for Text-To-Speech (TTS) technology, which enables the user to select any type of text document format (be it AZW, AZW3, CHM, DjVu (DjVu+OCR), DOC, DOCX, EPUB, FB2, HTML, LIT, MOBI, ODT, PDF, PRC, RTF or PowerPoint depending on the chosen program) and listen to it as it is being

read; moreover, the vast majority of TTS programs make it possible for the user to control speed, pitch, and volume of the reading voice. In addition, a number of reading voices (male or female, British English or American English) are available to choose from along with the option of saving an audio version of the file. Multimedia enhanced application, internet, text support, hyperlinked glossaries, L1 and L2 captions, explanatory notes, translations and TTS all represent promising tools that might be applied in EFL classroom. Yet, the fact that listening is a complex skill that is hard to assess and pretty demanding on the part of learners to develop, gave teachers a hard time trying to figure out effective ways to teach it.

2.2.3.4 CALL and Reading Skill

Reading is one of the most affected skills by the technological advancement, as virtual eBooks are taking over the traditional paper ones, claiming lion's share in the market. This digitalization of reading materials made their production, publication, storage, delivery, and sharing through the web much easier and less expensive. As a result, EFL teachers and learners have an access to a large and diverse variety of reading materials never dreamt of before. According to Alsied (2013), the use of computer and internet in reading class

“can encourage EFL learners and open opportunities to read widely in foreign language” resulting in *“developing vocabulary ... mastering important structures in the target language ... promote extensive reading; build reading fluency and rate; develop intrinsic motivation for reading; and contribute to a coherent curriculum for student learning”* (p. 64).

Furthermore, the easy access to reading materials by virtually anyone who has a computer and internet connection resulted in the democratisation of reading or at least access to quality reading materials that at some point were a monopoly of those who could afford buying paper books.

Hubbard (2009) asserts that CALL enhanced environment can assist reading development in at least three ways including *“1) controlling what the readers saw and how long they saw it in order to promote reading strategies and automaticity, 2) providing comprehension tasks and exercises, and 3) presenting glosses and other comprehension aids”* (p. 7). Another widespread reading aid is Electronic dictionaries, which made reading a less demanding chore thus learners can look up any word by just double clicking it, saving the reader by that a lot of time and effort. Moreover, Hyperlinks and glossaries are believed to be very useful tools for reading

comprehension classes as they assist learners develop a better understanding of the text and the overall context. Furthermore, many applications, software, and internet websites are available in the market providing reading materials and comprehension tasks that assess learners' reading skills and provide feedback.

2.2.3.5 CALL and Grammar

In addition to the four-macro skills, grammar is another aspect of language that has attracted software developers' attention. In fact, grammar instruction courseware claim a large share of CALL software market. Despite the inability of the current technologies to effectively engage in a two-way communication with the user, it is *“possible for CALL to provide rich input in the form of integrated multimedia programs and to provide explicit grammar explanations that can be viewed and reviewed at the learner's own pace”* (Pennington, 1996, cited in Emhamed & Krishnan, 2011, p. 184). The use of CALL for this particular aspect of language is highly controversial, since that *“some educators have decried the use of computers as electronic workbooks for drill and practice exercises, others have advocated their use for tutorials and drills to free up more classroom time for real communication.”* (Hubbard, 2009, p. 6). Yet, studies have shown that the use of computer in general and multimedia in particular reduces learning time by 30% compared to traditional instruction (Chambers et al., 2001), and other features *“such as learner interactivity and learner control over programs, produce improved outcomes in achievement”* (Hubbard, 2009, p. 6). Therefore, instead of excluding CALL from grammar instruction, educators and software developers should think of ways to effectively integrate this advantageous tool.

Moreover, authoring systems are another type of software that are getting momentum as an effective grammar instruction tool, as this type of software enables teachers to *“design their own multimedia courseware”* (Warschauer, 1996, p. 11) and build their own applications incorporating different types of exercises, including question-based quizzes, gap-fill exercises, crossword puzzles, matching or ordering exercises, and jumbled-sentence exercises. Furthermore, teachers can publish their tasks on internet, collect the results of their students' performance, and provide learners with the needed corrective feedback. The teacher can control the type of feedback to be offered, which varies from simple display of the right answer to providing the learner with detailed grammatical rules and explanations. Yet, because they *“take a lot of time and effort to master ... [authoring systems] are most often used by true enthusiasts”* (ibid., 1996, p. 11), who are ready to go the extra mile to learn coding basics. However, with the advent of Learning Management Systems, tailoring a grammar lesson and incorporating

different types of tasks in it is much easier nowadays, as the friendly user-interface that characterizes this type of platforms and the way all the available options are displayed make their manipulation a drag-and-drop matter.

Additionally, grammar checkers are also widely used software that come as an add-feature within writing processors (e.g. MSWord), they are “*designed for native speakers and they typically point to problems believed typical of native speaker writing (e.g. too much use of passives)*” (Warschauer, 1996, p. 9). Yet they have been heavily criticized for their complexity and confusing feedback that are inappropriate for ESL and EFL learners (ibid.). Meanwhile, for grammar self-study, learners may find a huge variety of tutor software and websites including online courses and references, workbook-style exercises, and hypertext-linked grammar notes accompanying readings (Hubbard, 2004), all of which designed to provide the user with the rules as well as different types of tests to examine their comprehension and improvement. Some of grammar instruction software can also be found as an add feature that comes with electronic dictionaries.

2.2.3.6 CALL and Vocabulary

When it comes to vocabulary learning and instruction, electronic dictionaries are a type of software that simply cannot be ignored as they can help learners look up difficult words easily and broaden their vocabulary repertoire. In addition to being available on CDs and downloadable applications, electronic dictionaries are also available online. Similarly, electronic collocation dictionaries are deemed very beneficial as they allow the learner to make connections between different words and go beyond single word definition to learn language in terms of chunks and at an idiomatic level. Furthermore, many electronic dictionaries come with genie option, thanks to this feature the learner can look up the meaning of any word by just double clicking it and the definition pops up, making it by that more convenient and easier to use. Likewise, electronic glossing operates in the same manner, though they cover a limited number of words that are pre-selected and prepared by the instructor according to his/her learners' needs.

Additionally, there is an abundance of vocabulary learning tools available online, including interactive self-quizzing tests and games, concordances, and hypertexts; this later entails links that allow the reader to move to different parts of the documents or consult other sources for further information (Zhang, 2012). Whereas for concordances, they are “*tools that allow you to tap into large collections of texts, called corpora, to help learners discover how language*

is actually used” (Hubbard, 2014a, para. 4), this type of courseware searches in related databases for all the possible uses of a word or a phrase in all the possible different contexts. Designed for advanced learners, concordances might not be suitable for beginners, yet teachers can adapt them to their lessons (Hubbard, 2014a.). Furthermore, electronic translators, be they online or installable applications, are also widely used by learners. Though the translation of long sentences might be a tricky task for this type of software, the inclusion of Natural Language Processing (NLP) systems in them enables electronic translators to learn from their users’ input and automatically improve the quality of the translation they provide.

Another vocabulary-instruction trend is the integration of sounds, images, and even video clips in words definitions in order to provide the learner with the best understanding of words and their meanings. Zhang (2012) notes that students reacted positively to this multimedia incorporation in vocabulary instruction, which has been proven *“effective for the learners and was able to contextualize and personalize learners’ learning processes on vocabulary”* (p. 3). After being considered by Krashen (1982, p. 450) to be *“at best boring and at worst painful”*, vocabulary learning might find its salvation in CALL. A fact highly endorsed by L. Jones (2004) who believes that CALL is a *“motivating force to enhance vocabulary acquisition”* mainly due to *“its clarity and attractiveness of presentation, its games-manager role, its availability at all hours and its flexibility in supplying for the preferences of different users”* (p. 24). Features that might help render vocabulary learning less of a chore and a more enjoyable activity.

2.2.3.7 Computer Assisted Language Testing

The fact that testing and assessment are integral parts of learning and teaching process paved the way for the emergence of a CALL subfield labelled Computer Assisted Language Testing (CALT). Also referred to as Computer Based Testing (CBT), CALT is generally defined as *“an integrated procedure in which language performance is elicited and assessed”* by computers (Noijons, 1994, p. 38). Though there have been arguments that testing and assessment are not directly related to the learning process, the body of literature addressing CALT is considerable as more CALL journals and conferences have been devoted to this CALL subfield in particular. The main distinctive feature of CALT is the delivery of the test through the computer, which allows the teachers a range of options unavailable with pen and paper tests such as *“control of time, potentially greater security and automatic scoring and reporting. In more elaborate versions test items of similar difficulty may be drawn randomly from a pool so that each student receives a different test”* (Noijons, 1994, p. 38), as well as individualized testing and

immediate feedback provision (Noijons, 1994). Furthermore, CALT also allows educators the privilege of accessing what has been termed “Adaptive Testing”, where

“... items are presented to the student at a targeted level of challenge, becoming easier or harder depending on the answers to preceding questions, ideally resulting in a shorter, and more efficient test experience for both the student and institution”

(ibid., p. 38.)

Such testing systems should help teachers operate more efficiently in a mixed-ability class and meet the needs of a wider array of learners’ levels without the need to spend substantial amounts of time in designing different tests and scoring them. Nevertheless, like any other piece of technology, CALT is characterized by a number of limitations over which it was criticized, most important of which is its inability to accurately assess productive skills, namely speaking and writing (Alderson, 2000). Though Automatic Speech Recognition and Open-Response Systems technologies are improving at a remarkable pace in providing reliable speaking and pronunciation assessment results, they are falling short when it comes to assessing oral productions of non-native speakers. Meanwhile, CALT still has a long way to go when it comes to assessing writing skill, as no piece of software has been proved able to reliably carry out such a test without the need for a direct intervention from a human, making writing skill assessment one of the main underdeveloped areas of CALT.

In a study conducted by Motteram (2013), 20 different teachers were interviewed to investigate the tools they used to assess their students. As a result of that investigation, Motteram came up the following table that features a number of website designed for the testing of a range of skills.

What tools are teachers using?	How are they being used?
Writing tools	
Blogger www.blogger.com	Blogger is a free blogging tool from Google. Students can use it to keep diaries, write stories, reflect on classes. Teachers and peers can easily leave comments. Students can develop communities. Help videos to use blogger www.teachertrainingvideos.com/newBlogger/index.html www.teachertrainingvideos.com/newBlogger2/index.html

<p>WordPress http://wordpress.com/</p>	<p>Another very popular blogging tool that is also free. Slightly more sophisticated than Blogger it provides all the same elements as Blogger but with perhaps a better look and feel. Versions of WordPress can be downloaded onto your own server, so that they can be customized for a school and plugins added to extend their capabilities.</p> <p>Help videos to use WordPress www.teachertrainingvideos.com/wordpress/index.html</p>
<p>Wikis http://pbworks.com/</p>	<p>A great way of providing a platform for collaboration and sharing. Wikis are websites built by groups of students rather than individuals. They allow for collaborative writing exercises where students can edit and review their work and the work of others. Information about the creation of a wiki allows the teacher to easily see who has contributed and who hasn't.</p> <p>Help videos to use PB Wiki www.teachertrainingvideos.com/pbworks/index.html</p>
<p>Tricider https://tricider.com/en/t/</p>	<p>Quick and simple discussion board that allows students not only to add their own ideas but also to comment on the ideas of their peers. Good for brainstorming, debates, essay preparation and drafting.</p> <p>Help videos to use Tricider www.teachertrainingvideos.com/tricider/index.html</p>
<p>Wallwisher http://wallwisher.com/</p>	<p>This website provides a sort of collaborative electronic board where students can add up comments, pictures, video and links around a given theme. Great for brainstorming, preparing essays and projects, and sharing ideas.</p> <p>Help videos to use Wallwisher www.teachertrainingvideos.com/wall/index.html</p>
<p>Reading content</p>	
<p>Breakingnewenglish www.breakingnewsenglish.com/</p>	<p>Useful website of reading and listening content that is very topical and related to recent news events. The site includes whole lesson plans built around the content, but the content can easily be adapted to use for assessments.</p>
<p>Listenaminute http://listenaminute.com/</p>	<p>Another source of reading and listening content that can be easily adapted for assessments.</p>
<p>Listening material</p>	

<p>ELLLO English http://elllo.org/</p>	<p>Huge collection of monologues and dialogues from a whole variety of speakers which can easily be used for assessment purposes.</p>
<p>Audio/speaking</p>	
<p>Vocaroo http://vocaroo.com/</p>	<p>Simple audio tool that can allow for five minute recordings at the click of a button. Recordings can be shared via email, embedded in a blog, wiki or virtual learning environment or even downloaded.</p> <p>Help videos to use Vocaroo www.teachertrainingvideos.com/vocaroo1/index.html</p>
<p>VoiceThread http://voicethread.com/</p>	<p>Excellent tool that can be used collaboratively. Students can add written or audio comments concerning an image, video or document.</p> <p>Help videos to use VoiceThread www.teachertrainingvideos.com/voiceThread/index.html</p>
<p>MailVu http://mailvu.com/</p>	<p>Simple audio tool that also uses the webcam facilities of a computer. Allows for simple webcam recordings in pairs or groups and can be useful for pair work assessments.</p> <p>Help videos to use MailVu www.teachertrainingvideos.com/mailVu/index.html</p>
<p>Voxopop www.voxopop.com/</p>	<p>Audio tool works like a discussion board but with recordings. Teachers or students can set up questions and students can add their oral answers, replies or comments. Useful for oral work, discussions, brainstorming, opinions etc.</p> <p>Help Videos to use Voxopop www.teachertrainingvideos.com/voxopop/index.html</p>
<p>myBrainShark www.brainshark.com/mybrainshark</p>	<p>Versatile tool that allows you to upload videos, pictures, PowerPoint presentations or documents and then add your voice to them and share the recordings via email, or embed them into a blog or Moodle site.</p> <p>Help videos to use myBrainShark www.teachertrainingvideos.com/brain/index.html</p>
<p>Virtual learning environments</p>	
<p>Moodle https://moodle.org/</p>	<p>Online virtual learning environment that is used in many higher education institutions. Allows for a huge range of assessment possibilities but has generally been used for</p>

	writing and feedback. Has chat rooms, forums which can also be used for assessment purposes. Teachers can also create online quizzes and tests that students can use to evaluate their progress and use formatively.
Edmodo www.edmodo.com/	Free online virtual learning environment that teachers can set up on their own by simply submitting their email address. Great for sharing, discussions and brainstorming. Allows for upload of assignments and drafts and quick feedback. Help videos to use Edmodo www.teachertrainingvideos.com/edmodo1/index.html
Quiz making tools	
Pro-Profes www.proprofes.com/quiz-school/	A free online quiz maker. It could be used to make formative and periodic assessments.

Table 2.2.2: At-a-Glance ELT Assessment Mode and Tools (adopted from Motteram, 2013, pp. 162-164)

It is worth pointing out that Motteram (ibid.) focused solely on online testing tools, whereas there are other software packages mainly authoring systems and other installable software that enable users to design their own tests. The tests can be either performed directly on a computer or published online for learners, and the scores are automatically sent to teacher's email.

Thanks to technology, students can be assessed in ways unavailable before using a large variety of tools to create a larger and more diverse range of tasks that can be distributed easier, faster, and at a wider range as time, distance, and even cost are not issues anymore. Perhaps the most significant evidence that CALT is an effective means of testing and assessment is its use to deliver internationally recognised tests such as IELTS and TOEFL. Furthermore, teachers can devote the time previously spent on mechanical routines such as counting right answers and grading them on other areas such as preparing remedial lectures or providing more corrective feedback for students. Additionally, some researchers are advocating other unconventional ways of testing; in this regard, Motteram (2013) points out that *“We [teachers] can video our students interacting in groups or even working on a monologue or story. We can get our students to record podcasts and audio files. We can get them to develop their written work in blogs and wikis”* (p. 149). Assessment is still overwhelmingly paper based, thus CALT like the rest of CALL subfields is still experimental and teachers need to recognize the benefits of using ICT for this aspect of language teaching.

2.2.3.8 Other Major Technologies

Regarded as two of the most significant developments in the use of ICT in educational settings, LMS and Cloud computing technologies are too prominent to be overlooked. Basically defined as a collection of software applications provided under one single package, Learning Management Systems (LMS) provide teachers with a variety of tools including content creation tools, content organization tools, content delivery tools, communication tools, collaboration tools, and assessment tools (Palahicky, 2015). Referring to it as a key technology that enables administration of and access to learning materials “*anytime, anywhere*”, Berking & Gallagher (2015, p. 7) define LMS as “*server-based software systems used to manage and deliver (through a web browser) learning of many types, particularly asynchronous eLearning. They generally also include the capability of tracking and managing many kinds of learner data, especially that of learner performance*”. In addition to enabling tracking and keeping records of learners’ progress (Mahnegar, 2012), LMS also provides a virtual environment for teacher/student and student/student collaboration and interaction regardless to spatial and time constraints (Agamba, 2015).

LMS is one of the most widespread technologies amongst higher education institutions, as a survey led by “ECAR” in 2015 reported that 85% of faculty and 83% of students in the US use an LMS, most of them on a regular basis (Berking & Gallagher, 2015). Whereas, 95% of British higher education institutions reported employing LMS back in 2005 (McGill & Klobas, 2009). This widespread use of this technology is a result of a wide array of functions that it serves, including

- *Structure – centralization and organization of all learning-related functions into one system, enabling efficient access to these functions via layered interface navigation functions.*
- *Security – protection from unauthorized access to courses, learner records, and administrative functions.*
- *Registration – finding and selecting or assigning courses, curricula, etc. by learners and their supervisors. This may include instructor-led training classes.*
- *Delivery – on-demand delivery of learning content and experiences to learners.*
- *Interaction – learner interaction with the content and communication between learners, instructors, course administrators, as well as between communicative content and the LMS (i.e. SCORM content).*

- *Assessment – administering assessments and the collection, tracking, and storing of assessment data, with further actions taken (possibly in other systems) based on the results of assessment. Many LMSs include the ability to create assessments as well.*
- *Tracking – tracking of learner data including progress on a predefined set of training goals and requirements, and tracking of courses for usage, especially in relation to required deployment of mandated training (for example, compliance training).*
- *Reporting – extraction and presentation of information by administrators and stakeholders about learners and courses, including the information that is tracked as described above.*
- *Record keeping – storage and maintenance of data about learners. This includes both demographical info profiling learners and their training progress and accomplishments. This is especially critical when an LMS is deployed as the official “system of record” for an organization.*
- *Facilitating Reuse – searching and recombining courses and possibly parts of courses for delivery in different curricula and learning tracks (this is a much more prominent feature of LCMSs, but can be included in an LMS).*
- *Personalization – configuration of LMS functions, interfaces, and features by learners and administrators to match personal preferences, organizational needs, etc.*
- *Integration – exchange of data with external systems to facilitate enterprise-wide tracking of learner performance and transfer of user data, and to exploit external content and learning resources (i.e. content management systems).*
- *Administration – centralized management all of the functions in this list.*

(Berking & Gallagher, 2015, p. 8).

Still it should be pointed out that not every single LMS provides all the up-listed functions; therefore, it is up to the interested teacher or institution to choose the LMS that guarantees the functions they seek and the one that better accommodates their needs and objectives. In addition to payable ones, there is a number of free LMSs available to choose from, including Moodle, Canvas, Schoology, Pathwright, Scalable-learning project, Khan Academy, EdX, Edpuzzle, Gooru, and Blendspace to name some.

Like any other recent online-based technology, LMSs would not exist without Cloud computing. This latter revolutionized conceptions held towards what constitutes IT structures, information access, and the scale at which economic, scientific, and educational collaborations can take place (Hosting, 2014). Defined as

“... a model for enabling ubiquitous, convenient, on demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications

and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction” (Hosting, 2014, p. 2).

Cloud computing is basically a set of central servers that remotely provide access to advanced computing applications and services to companies and organizations via the web (ibid.), including *“cost-efficient business intelligence software programs, collaborative platforms and web applications, the adoption of which is often seen as a major form of innovation in different settings, including education”* (ibid., p. 6). Cloud computing proved one of the major developments in educational fields, especially at tertiary level, where besides eliminating the need for purchasing ICT infrastructure to run advanced programs, and manage and store huge amounts of students and administrative data, it enables collaboration at scales never dreamt of before (Mircea & Andreescu, 2011). Cases in point are joint virtual laboratories, Massive Open Online Courses, data repositories, and enabling cooperative instruction methods (Wiki, eJournal, LMS) (ibid.).

To sum up, there are some full package commercial software such as Tell Me More by “Auralog”, which encompass activities targeting all the different skills of language varying from beginner to business level. This type of software was first meant to be used as a tutoring self-study software yet studies (Elimat et al., 2014) demonstrated that teachers could make use of its different features to deliver or at least reinforce their lessons. CALL software and online websites are a highly competitive and thriving market that is increasingly attracting software developers and educators, the fact that has a positive effect on the quality and quantity of the educative software. Nevertheless, CALL still requires more attention from educators and didacticians to provide this field with a firm pedagogical and theoretical foundation. Finally, it is worth mentioning that covering all the existing technologies used in CALL is both impossible and beyond the scope of this study, thus in this part, the researcher referred to the mainstream and the most common technologies and software used in CALL.

2.2.4 Tutor or Tool

While dealing with CALL literature, readers come across terms such as CALL material, software, program or courseware. All the aforementioned labels refer to computer programs that are designed to be used for teaching and learning purposes. Yet the way CALL is used determines whether it is a tool or tutor. Tutors are directive courseware that are designed to direct the user throughout different lesson stages by automatically executing different programs without a need for a human intervention. They are very suitable for self-study as they offer *“flexibility on several different levels, including access time, geographical location and learning*

pace” (Liu, 2013, p. 5). The main feature that differentiates tutors from tools is their ability to assess learners’ input and react accordingly (ibid.). Levy (1997) refers tutors to the use of *“the computer as a machine for delivering interactive language learning and practice material”* (p. 128), yet this focus on the hardware does not exclude the software. Most of tutors follow the same pattern in which *“The computer presents some subject material, the student responds, the computer evaluates the response, and, from the results of the evaluation, determines what to present next”* (Haertel & Means, 2003, p. 105). Still, the user can control what to study if s/he opts for the free mode. Coming up with an appropriate well-designed tutor software and hardware requires a lot of expertise and time, thus it must be reliable, flexible, able to cope with a range of variables, and provide feedback which is both accurate and appropriate (ibid.), as they are often the *“primary and sometimes only learning source”* (ibid.). This type of CALL material includes *“courseware for paced reading, language games, text reconstruction, puzzles, etc.”* (ibid., p. 98) depending on the lesson’s objectives and learners’ level.

Being a tool means that CALL software or hardware plays a nondirective role in the process of teaching and learning. This type in particular requires the presence of a teacher or at least some training on how it is used thus it is meant *“to assist learning”* by taking *“part of a larger process”* (ibid., p. 107). Levy (1997) sees tool software *“as a means for learners to experience the authentic language and communication opportunities and enhancements afforded by computers”* (p. 131). Unlike tutors, tools are completely under instructor’s control, as they are employed to carry out specific tasks at specific lesson stages for predetermined purposes. They are very useful as they help *“saving time and preserving intellectual energy by transferring necessary but routine clerical tasks of a tedious, mechanical kind to the computer”* (Haertel & Means, 2003, p. 113). Tools are relatively simple to design and code and they are widely used, this can be observed in the universal use of some tools such as spelling and grammar checkers, desktop publishing programs, concordances, and Word Processors; the later in particular is virtually employed by everyone who uses the computer to compose.

Despite the controversy over which one is superior to the other, both tool and tutor software come in very handy in different situations and for different purposes. Yet it is up to the user to wisely decide which one to utilise, thus according to Hubbard (2014a, para. 3) *“effective language learning can include elements of both”*, and the key factor is users’ ability to *“strike a balance between them so that you come out of this able to recognize the potential advantages of using neither, one, or both for a given teaching situation”* (ibid.). Tutor software are a widely spread among language learners for self-studying or further developing their language skills far

from traditional language teaching institutions. Whereas, tools are much more common among educators' communities as a number of emerging blended learning approaches employ a variety of tools to help teachers carry out different tasks, be they lesson delivery, content reinforcement, feedback provision, or tests' administration and scoring.

2.2.5 Factors Influencing CALL Implementation in EFL classroom

Since its emergence, CALL has faced a number of challenges and problems that have made its implementation a troublesome chore for many educators and institutions, and they still impede its integration in a number of countries especially underdeveloped ones. The factors that have a direct impact on CALL incorporation in EFL classroom are quite numerous as they vary in nature depending on a number of variables. These problems can be classified under two main categories, external factors and internal factors (Park & Son, 2009). It is worth noting that external factors are purely environmental, whereas internal ones stem from teacher related issues (ibid.).

2.2.5.1 External factors

2.1.6.1.1 Financial Problems: Within the external factors, we find financial problems that represent a challenge for both teachers and institutions. The financial aspect virtually influences all the other factors, thus without adequate financing the educational institution would not be able to provide the needed equipment, software, maintenance, training for teachers, and supporting staff. Expenses that are considered a huge burden for any university budget especially in developing countries. In addition, the fact that technology world is in a constant state of flux makes updating facilities to meet technological development even more costly. On the micro-level, teachers who wish to integrate technological aids into their practice cannot rely solely on the employing entity to provide them with the needed computing equipment, and having equipment of their own may be sometime beyond their financial abilities.

2.2.5.1.2 Time: Time is a major hurdle since that setting up the computer and other supporting equipment is time consuming, hence it might take a teacher up to 10 minutes to set up projection using a laptop and an data projector at classroom, a step that the majority of teachers are not willing to take, considering the rather limited time of the whole lesson that often ranges between 60 and 90 minutes. Besides setting up equipment, CALL material preparation is also time consuming, and taking into account that teachers are usually overwhelmed by administrative paperwork makes spending more time preparing a lesson using

CALL much less appealing. A. Jones (2004) addresses this issue pointing out “*what really prevents teachers from following an interest in CALL is lack of time, since they tend to be sufficiently burdened already by their conventional administrative and classroom duties*” (p. 365). A problem that might be overcome if teachers were allowed more time for lesson preparation and planning (Chambers & Bax, 2006).

2.2.5.1.3 Equipment and Facilities: lack or inadequacy of facilities play a decisive role in determining the success of CALL diffusion process. Problems such as aging ICT equipment, slow or lack of internet connection, inadequacy of CALL software, unavailability of data projectors, inadequate sound systems, or even lack of headsets frustrate teachers and make them less enthusiastic about CALL, resulting in promoting change resistance and aborting any CALL incorporation attempt. Among the basic facilities for EFL learning, especially at tertiary level, are language laboratories. The main ignored fact about language laboratories is that they differ from those devised for other disciplines in terms of equipment, space and even arrangement (Chambers and Bax, 2006). Even the EFL classroom should “*be organized so as to allow for an easy move from CALL activities to non-CALL activities*” (ibid., p. 470), subtle details that may determine the success or failure of a technologically enhanced EFL learning experience.

2.2.5.1.4 Restricted Curricula: It is another aspect for teachers to be concerned about. The vast majority of curricula are inflexible and allow little room if ever for introduction of technological aids mainly because they are tightly related to the textbooks, and CALL integration usually does not exceed the use of audio-visual aids for material presentation and content reinforcement. Moreover, even if a teacher ventures to introduce CALL materials, s/he will find him/herself wondering whether what s/he did is completely in compliance with curriculum objectives. In such a situation, the teacher finds him/herself in a quandary where s/he has to choose between complying with the curriculum and its time constraint or applying a method that s/he deems more efficient and suitable. Tackling this particular point, Park and Son (2009, p. 90) confirm that “*having a flexible curriculum is a first step to facilitate technology use in the classroom*”. Furthermore, the search for related materials or adapting the curricula is both time consuming and physically demanding on the part of the teacher.

2.2.5.1.5 Technological Overload: Teachers are overloaded with myriads of technological aids and CALL teaching materials, and choosing what to use and how to use it is a headache-causing chore especially for teachers who have little or no experience with CALL. Despite the fact that we are in an age where educators are literally one click away from

discovering the latest trends in CALL, the amount of information is simply overwhelmingly confusing. Being uncertain of the reliability or the appropriateness CALL materials, teachers may just choose playing it safe and stick to their trusted old methods. Therefore, educational institutions have a crucial role to play in assisting their staff choose the appropriate piece of CALL that fits within their curriculum objectives. CALL practitioners worldwide also have a major role to play as sharing successful practices, exchanging experiences with different pieces of software, and investigating how different technologies could be employed in EFL classroom should facilitate the task of the new comers in deciding what CALL tool to embark on and how to employ it.

2.2.5.1.6 Supporting Staff: though it is often overlooked, supporting staff has a pivotal role in both preventing and overcoming technical problems, which may affect the flow of the lesson and cause its failure. Emphasizing supporting staff's importance for CALL implementation, Chambers and Bax (2006, p. 476) assert that *"Successful normalization requires that teachers' concerns about technical failures, and their lack of skills to deal with such failures, be addressed and overcome by means of reliable support and encouragement"*. In the same vein, "Becta Report" (2004, cited in Mahdi, 2013) carries on stressing supporting staff's importance in relieving teachers from technical problems by stating that *"technical faults might discourage them [teachers] from using ICT in their teaching because of the fear of equipment breaking down during a lesson"* (ibid., p. 197). Therefore, having a reliable technical staff ready to intervene whenever needed is amongst the main requirements of successful CALL implementation.

2.2.5.1.7 Introduction Process: The process through which ICT in general and CALL in particular are diffused is gradual and should go through different stages referred to by Rogers (1995) as "Innovation Decision Process theory", which he breaks down into five stages namely: Knowledge, Persuasion, Decision, Implementation and Confirmation. Explaining the process, Rogers states that

"... the innovation-decision process is the process through which an individual (or other decision-making unit) passes (1) from first knowledge of an innovation, (2) to forming an attitude toward the innovation, (3) to a decision to adopt or reject, (4) to implementation of the new idea, and (5) to confirmation of this decision."

(Rogers, 1995; cited in Albirirni, 2004, p. 380)

Skipping the introductory stages and jumping directly into implementation phase may result in the rejection of CALL, since both teachers and students need time to digest the idea of using

new educational tools and get convinced by its effectiveness and relativity. Furthermore, allowing teachers the needed time to form a positive attitude about technological aids affect their ability to learn new computer skills that help them apply CALL in their classrooms effectively (Bordbar, 2010, p. 37) and limit the chances for change resistance.

2.2.5.1.8 Lack of Sense of Ownership: Being imposed by a higher authority or non-teaching entity may result in resentment and avoidance of CALL by teachers as they may perceive it as a sort of external intrusion into their practice, a fact that is explained by Cuban (1986, Cited in Buabeng-Andoh, 2012, p. 139) who notes that

“...innovations for solving productivity problems defined by non-teachers invariably were mandated into use by district policy makers, not teachers ... views of teaching and organizational compliance ill-fitted to schools and classrooms and married to feckless strategies aimed at coercing teachers to use the innovation explain limited use of the new technologies”

As a major stakeholder in the process of teaching and learning, teachers’ opinion regarding the introduction of any educational strategy or tool must be the basis for any decision as a means to make them accept the idea and adopt it as if it was their own. Furthermore, teachers should be encouraged to claim ownership over the innovation introduction process and see how to improve it and adapt it to fit into their particular context without compromising the underlined objectives of the project.

2.2.5.1.9 Cultural and social norms: Though some would argue that in our present era, technological aids are widely accepted in all the different aspects of life, in developing countries technology is still alienated in educational fields. As in the case of any innovative movement, people tend to resist CALL introduction. In his cultural suitability factor hypothesis, Christensen (1998) argues *“How acceptable a new technology will be in a society depends on how well the proposed innovation fits the existing culture”* (ibid., 15). Carrying on the same tone, Fodje (1999, cited in Albirini, 2006a, p. 60), points out that

“What the world needs today is not talent in producing new technologies but talent in understanding the impact of technology on the society and individuals...Educational programs in the third world heretofore have been designed around the Western ideals. These need to be reworked to reflect the indigenous cultures and promote human values while at the same time producing the talent for ‘controlled’ technological advancement.”

Therefore, CALL materials should be adaptable to cultural and social specificities of different users, and educators must use authorized software that have been examined by their local authorities to avoid content that may contain some aspects which might be considered “immoral” or “offensive” to their respective culture.

2.2.5.2. Internal factors

2.2.5.2.1 Computer illiteracy: One of the main common internal problems that hinder CALL implementation is computer illiteracy. Teachers are sometimes motivated and interested in applying CALL in their classroom yet the lack of the needed ICT skills impedes them from taking the first step. Though, it seems unlikely to find someone in this age who does not know how to handle a computer properly, learners’ familiarity with technology is found to be intimidating for many teachers, whose every move is scrutinized and every novice mistake is detected. As technology is expected to assume a central position in the near future in EFL classroom, Warchauer and Healey (1998, p. 53) argue that:

“Preparing students to function in the networked society will become a major role in language instruction. This will most certainly be true for the English language classroom, with English likely to remain the lingua franca of the new global society ... especially in ESL and EFL classes, it will likely be the case that many of our students will have to develop new electronic literacy skills as they begin to confront for the first time the challenge of accessing and responding to the immense amount of English-language material available online.”

Moreover, teachers’ computer skills should exceed the simple basics, hence due to technological advancement and the introduction of authoring systems, the bar is set even higher and teachers are expected to have some background in coding. With such a burden placed on their shoulders, ESL and EFL teachers, more than any time before, are expected to overcome this type of problems and step it up to face more crucial aspects.

2.2.5.2.2 Teacher Training: Even for those who master computer skills, the absence of a model of how to integrate CALL and teach using technological aids makes them keep sticking to traditional ways in which they were taught. Studies have repeatedly pointed out that CALL is avoided by some teachers because of lack of training, which is often overlooked or undermined by policymakers (Egbert, 2002). Nowadays’ teacher training programmes provide coursework for teachers on how to integrate CALL in their practice, yet Abas (1995) implies that these programmes tend to focus on old and simplified educational applications that does

not get the satisfaction of teachers. On the other hand, even if provided with training on recent and more advanced CALL applications, teachers rarely ever venture to use them mainly because the training they receive is predominantly theoretical. Accordingly, Francis-Pelton and Pelton (1996, cited in Bordbar, 2010, p. 38) maintain that *“Although many teachers believe computers are an important component of students’ education, their lack of knowledge and experience lead to a lack of confidence to attempt to introduce them into their instruction”*. Similarly, teachers’ attitudes towards CALL are strongly related to their success in using technology (Hedge, 2003).

It is impossible for a training programme to provide teachers with all the needed skills, and trying to do so by providing regular courses might be an unaffordable financial burden, or just overwhelming for teachers who are already burdened by different responsibilities. Regarding this particular point, Levy (1997) argues that covering every single aspect in today’s ever changing technology world is virtually impossible, thus coursework should provide teachers with a firm foundation in CALL so that they can learn and develop other materials as a part of their ongoing professional development according to their learners’ needs without the need to organize a training workshop each time something new pops up. Furthermore, teachers’ training should go far beyond the technical aspects as relating technology to pedagogy and providing teachers with cogent practical models is vital to CALL success. Hence, putting in place a comprehensive training programme that takes into account teachers’ needs and objectives, then encouraging these teacher to embark on a journey of self-directed continuous professional development is prerequisite for any CALL project to take place.

2.2.5.2.3 Attitude: Despite the accessibility and availability of internet connection and different technological tools, teachers might simply abstain from using them driven by their negative attitude towards these technological aids, aborting by that any attempt of integrating technology into language teaching. For that reason teachers’ attitudes towards CALL are of considerable importance for any CALL integration project. Teachers’ attitude can be affected by a number of factors including their computer literacy, their perception of how effective is CALL, and how well and easily they can integrate technology into their practice. McBride (2007) concludes that teachers tend to be more receptive to the ideas of incorporating technological aids in classroom when *“presented with evidence that shows positive effects of the new teaching method on quality of learning outcomes and develop expertise in the new method”* (McBride, 2007, p. 165). Furthermore, CALL is more likely to be accepted if it meets the five attributes identified by Rogers (1995, cited in Albirirni, 2004), which include relative advantage, compatibility, complexity, observability, and trialability. Thus, the odds are in

favour of technology if “*adopters perceive that the innovation: (1) has an advantage over previous innovations; (2) is compatible with existing practices, (3) is not complex to understand and use, (4) shows observable results, and (5) can be experimented with on a limited basis before adoption*” (Albirini, 2006b, p. 37). At the end of the day, people will not risk changing their well-trusted old practices unless they find advantageous alternatives.

2.2.5.2.4 Computer Anxiety: Computer anxiety is a common problem encountered by teachers as well as students who are not familiar with computers, and to whom computer use in classroom is still a novelty (Meier, 1985). Being the consequence of fearing the unknown, computer anxiety negatively affects teachers’ decision to whether incorporate CALL into their practice, and learners’ attitude to whether accept the technology. Addressing the three components of anxiety put forward by Meier (ibid.), Lambert and Lenthall (1989, p. 208) maintain that computer fear, computer apprehension, and computer opposition “*relate to the user’s fear and reluctance to use computers because of a potential for devaluing people, respectively*”. Weil et al. (1987, cited in Lambert & Lenthall, ibid.), carried out a study about teachers’ ICT anxiety and conclude that “*computer anxiety consists of increased anxiety surrounding computer use as well as negative attitudes toward computers and negative cognitions or feelings about computer use*”. They also point out that “*computer anxiety to be unrelated to computer experience and was not reduced through increased experience*” (ibid.), refuting by that previous claims that relate computer anxiety increase to limited computer exposure. Despite the contradictory conclusions mentioned above, Todman and Lawrence (1992) claim that the quality of the experience affects anxiety more than the length of the experience, as they distinguish between “relaxed” and “stressful” experiences. Moreover, the stage at which technology is introduced and circumstances of introduction process might be decisive factors that trigger computer anxiety. One way to overcome this hindering factor is by “*using unfamiliar technology by a step-by-step planning system, using familiar technology successfully and moving to similar but more advanced applications of similar technology.*” (Georgi, 1991, cited in Daud, 1994, p. 344). So just as attitude, computer anxiety is related to the introduction process, and good training and support should help alleviate it.

2.2.5.2.5 Affective Factors: Though attitude and anxiety seem to claim lion’s share in the research addressing the affective factors associated with CALL implementation, Park and Son (2009) cite a number of factors that might as well hinder CALL implementation including “*teachers’ perspectives, personal attitudes, beliefs, confidence, motivation and awareness of the advantages of technology*” (ibid., p. 85). These affective factors are believed to be some of the

most decisive elements in CALL integration and its success. A case in point are the teachers who are so attached to their old methods of teaching and are unwilling to change them mainly because they feel unconfident handling computers, they believe that technology has nothing to offer, or simply because they consider themselves “old school” and learning how to integrate new methods is too late for them. There are a number of factors that influence this affective side in teachers and cause their rejection to technological aids, including

- *The fear that the technology would take over their job;*
- *They do not appreciate the new roles which they have to play including being the resource person, learning manager and the facilitator;*
- *They lack the time and added to that, no incentive is given to encourage them to keep up with the latest development in computing;*
- *The presence of the device may disrupt their routine. They may have to be responsible for the scheduling of the use of computer resources;*
- *They may find it difficult to cope with hardware malfunctions and program errors.*

(O'Shea & Self, 1983, p. 218)

Based on a model originally developed by Wozney and Abramy in 2006, Saaid (2010) proposes a model of technology integration source in which he explains the interaction and relationship between the different factors involved in any CALL project

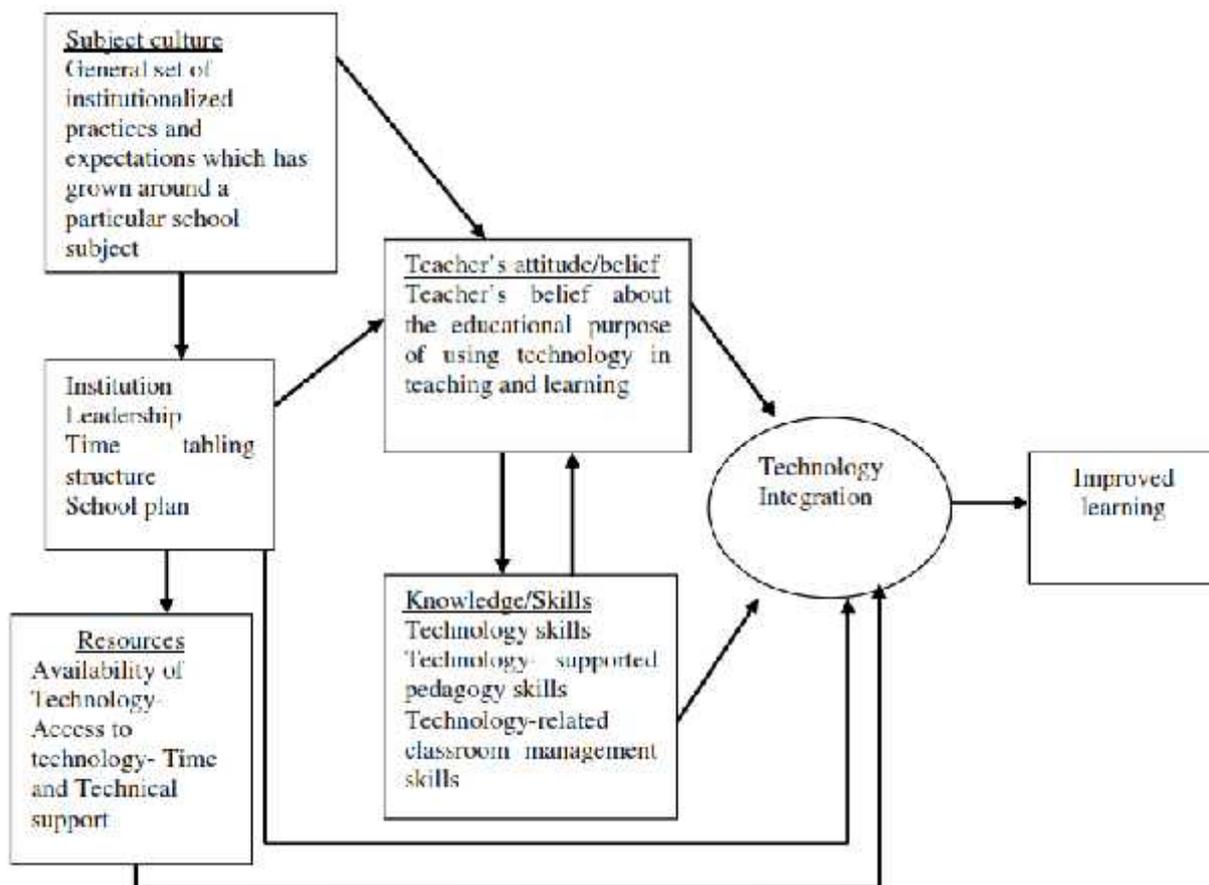


Figure 2.2.1: Technology Integration Source Model (Saaid, 2010, p. 187).

To sum up, there is a number of factors, be they external or internal, that influence the implementation of CALL either positively or negatively. As they need special attention, these factors vary in nature, as they can be financial, technical, pedagogical, logistic, or affective. They also vary in terms of the aspects they influence. However, there are two common features that unify all the aforementioned factors. First, they are all interrelated, as one issue leads to the other and no factor stands alone independent and unaffected by the others. Second, all the problems can be overcome through informed planning and clear long term strategies, as CALL introduction is neither an overnight business nor a straight forward process. Therefore, surmounting these issues is possible if educators, administrators as well as policy makers could recognize the true value of CALL and the positive impact that it might have on the learning journey of students.

2.2.6 Teachers and students' Roles in CALL

Being the two main stakeholders in any educational setting, teachers and learners are the foundations upon which EFL classroom is based, and the nature of their roles reflects the

approach that is being applied. Since its dawn, education witnessed a constant change in views and beliefs regarding what constitutes teaching and learning processes and, consequently, changes in teachers and learners' roles as well. Like any other innovative practice, CALL incorporation necessitates a shift in views and a reshuffle of roles. The presence of the computer made some CALL-enthusiasts assume that this new comer will take over the role traditionally played by teachers, and some have even started visualising an EFL classroom without a human instructor.

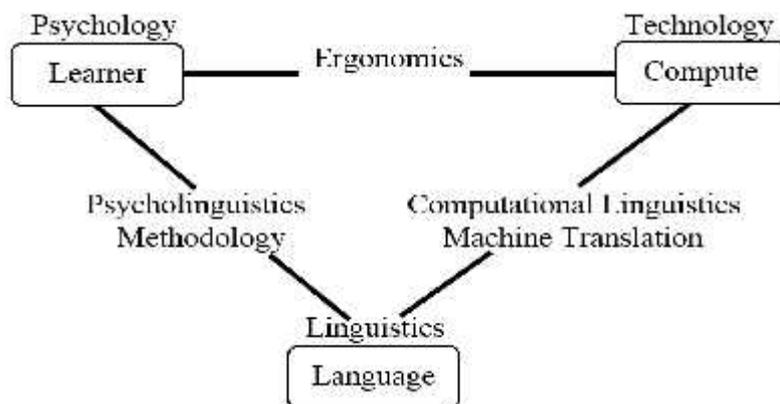


Figure 2.2.2: A Modal of the Three Main Factors in CALL (Learner, Language, Computer) (Ahmad et al., 1985, p. 45).

Ahmad et al. (1985) proposed a model based on the relationship between learner, computer, and language, with the teacher completely excluded from the picture. This teacher exclusive view has overlooked the fact that even if teachers are not present at the time the learning is taking place, they still play a crucial role during conceptualization, design, and development of CALL materials, a role that computing specialists cannot fulfil as it requires pedagogical knowledge, linguistic knowledge, and practical field experience. Addressing the importance of teachers' role in CALL environment, Marsh (2012, p. 13) claims that *“The teacher’s role has always been central to providing a structured and engaging teaching and learning environment ... Technology can only achieve so much, and the teacher has to be the motivating, organizing force to the integration of students’ online and classroom learning”*. Hence, CALL, at least at its current state, cannot stand on its own managing the whole learning experience, but it certainly triggers a change in the roles to be played by teachers. In line with this argument, Ely and Plomp (1986) argue that

“The teacher will be less of an information-giver and more of a learning facilitator. Fewer professional teachers may be required if roles are modified and teacher aides or assistants are used alongside professional teachers. In no way should the teacher be denigrated: he/she is still the primary resource person now serves as more of a manager

than as a fountain of knowledge. The more a teacher participates in the planning of instructional delivery, the greater the fidelity to an agreed-upon implementation design”

(Ely & Plomp, 1986, p.246)

Ely and Plomp’s (ibid.) vision is a reality in today’s world, as in educational institutions that apply a blended learning model, especially station rotation model and flex models, teachers’ roles shifted markedly away from passive lecturing and more towards content development and organization, supervision, and remediation provision. Whereas, routinely aspects such as ensuring that learners are working on the designated tasks, moving between different stages according to the schedule, and using the technology properly fall to teacher assistants. Therefore, Ahmed et al. (1985) seem to have missed an important fact, which is teachers are always involved either directly or indirectly (Daud, 1994), and that technology with its current limitations cannot handle issues that necessitate human discretion and ability to observe variables and adjust learning experience accordingly.

Preparing students for real life challenges and offering them the opportunity to develop their abilities are the two main premises upon which student-centred EFL classroom is founded. In such a classroom teachers role as well as that of students have changed, thus according to Jones (2007, p. 25) in a student-centred classroom

“Students can’t be “taught” – they can only be helped to learn. In a student-centred classroom, our role is to help and encourage students to develop their skills, but without relinquishing our more traditional role as a source of information, advice, and knowledge. In a student-centered classroom, the teacher and the students are a team working together.”

In CALL environment, many tasks endorsed by student-centred approach are amplified as technological aids facilitate and nurture learners’ independence, agency, and self-reliance. Therefore, as a result of working in a technology enhanced environment teachers are obliged to assume other roles as well. The tasks imposed by the presence of the technology as a third party in EFL classroom have been discussed by many field experts, resulting in shifting teachers’ role from

- *“transferor of knowledge” to “facilitator”;*
- *“authority” to “consultant and facilitator”;*
- *“director of learning” to “facilitator of learning”;*

- *“sage of the stage” to “guide on the side”;*
- *“transmitter of knowledge” to “coach”, “mentor”, “manager of the learning”;*
- *“expert on learning psychology”, “technical expert”;*
- *someone in charge of “telling” to someone in charge of “facilitating learning”.*

(Carballo-Calero, 2001, p. 7)

Along with the new demands, teachers are supposed to adapt to the new status quo to ensure a successful learning experience in a technology-enhanced environment. With the shift in teachers' roles, learners are expected to assume a more active role, by controlling and managing their own learning process, taking decisions, gathering information, negotiating meaning themselves, and setting personal objectives and working to achieve them.

In this era of technology, information is within the reach of whoever desires it; consequently, teachers' role is not confined to being the source of knowledge and transmitting it anymore, but rather to equipping the learners with the necessary skills and tools to look for, access, gather, evaluate, classify, and select the needed information they find in books, software, and most importantly internet (Banheri, 2006). Jeong (2006) emphasizes that teachers have to integrate technology within their classrooms preserving the friendly and supportive environment needed for language learning. In order to cope with the technological presence in EFL classroom, teachers have to be acquainted with technology and exploit its various applications to accommodate to learners needs and objectives (Cunningham, 2000). Moreover, teachers must be able to incorporate CALL both effectively and creatively, and manage computer based tasks and activities according to their learners' proficiency and computer literacy (Johnson, 2002; Oh & French, 2007).

Teachers' comfortability with technology and positive attitude are crucial factors for successful integration of CALL as they influence learners' achievement, and such a mind state can be achieved through experiencing CALL and its positive effects by teachers themselves (Rakes & Casey, 2000, cited in Park & Son, 2009). Furthermore, positive learning experiences with computer makes teachers more confident handling it, therefore teacher-training programmes must focus more on providing teachers with such an experience, which they might have lacked as students given that CALL is still relatively less common. Accordingly, Tunçok (2010) confirms that the same applies to learners, whose attitudes are closely related to the

nature of their experiences with computers, hence having a positive one may result in high motivation and increased intake.

Moreover, teachers interested in CALL may find themselves involved in practices which take place beyond the confines of their classroom, including

- *As researchers into second language acquisition, human-computer interaction, what works for CALL;*
- *As consumers of CALL software for class use or building web activities into course work*
- *As directors, helping students find and use supplementary CALL materials or web resources;*
- *As managers of computer-mediated communication among learners in and out of class;*
- *As software or web developers, either "from scratch" or adding new materials to existing templates;*
- *As coaches to help students develop software, websites, and general computer literacy;*
- *As CALL experts for your program, helping other teachers and administrators with CALL implementations;*
- *As CALL professionals, consulting on external projects, doing software reviews for journals, making conference presentations, writing papers, interpreting and applying CALL research, and/or providing input to the field at large.*

(Hubbard: 2004, para. 1)

There are plenty of possibilities for teachers to get involved in CALL, as this later is a still under development and many aspects are still unexplored. By taking these additional challenges, teachers will refine their practice as such activities are part of continuous professional development; in addition, the practices listed above definitely contribute to improving our understanding of what constitutes CALL and help overcoming the misguided assumptions that hinder CALL normalization in EFL classroom.

At the other end of spectrum, students must be more responsible for their own learning and take advantage of what technology has to offer to promote their own learning experience as they are offered the needed tools. Students should use technology to personalize their learning experience and claim more ownership over their learning process. As CALL materials are highly flexible, learners are expected to use their time outside classroom for further practice and work on their underdeveloped skills. Furthermore, thanks to the internet learners can broaden their knowledge in any field they wish and bridge the gaps left uncovered by in-class

instruction especially cultural aspects for EFL learners. Similarly, the internet and CMC tools represent huge opportunities for learners to work on their communicative skills by creating their own EFL learning communities through interacting with other EFL learners and native speakers.

To sum up, the six decades of CALL existence clearly states that CALL in its current state is still very underdeveloped to claim the classroom for itself, and that teachers are too important for EFL classroom to be discarded. In fact, all the research that has been done in the field of CALL so far promotes blended learning as the most effective form of CALL and emphasizes the importance of human instructors' role. Yet teachers who wish to integrate CALL into their practice face the challenge of adapting to the new status quo through successfully incorporating technological aids to improve students' learning experience and accommodate their needs and objectives. A challenge that seems worth taking as *“teachers who do not use the computer in their teaching are not only doing a disservice to their pupils, but are also rejecting a teaching tool which is limited in its use only by the imagination of the teachers”*. (Moore, 1986, cited in Park & Son, 2009, p. 95). Learners on the other hand are equally responsible for their own learning, thus they must not expect to be spoon-fed in an era where CALL in general and internet in particular democratized learning and basically offered everybody the opportunity to develop him/herself regardless to space, time, or financial constraints.

2.2.7 Blended Learning

Regarded as a top trend in knowledge delivery (Rooney, 2003, cited in Graham et al., 2013), blended learning is turning fast into the new norm in tertiary education and corporate training, though its global outreach is taking over K-12 just as fast (Graham et al., 2013). Blended learning, also known as distributed learning and hybrid learning, is so prevalent among educational institutions and corporate training settings that it is expected to be the new norm in knowledge delivery (Ross & Gage, 2006) claiming by that the status of the new traditional method (Norberg, et al., 2013). This global propagation resulted in a multitude of views and perspectives as to what constitutes blended learning, leading to various definitions of this teaching and learning model. The most common definition of blended learning is the one that emphasizes the merging of face-to-face methods of teaching with online or technologically enhanced teaching (Bliuc, et al., 2007), a definition so broad that it virtually encompasses all current teaching systems that employs some form of technology (Bliuc, et al., 2007; Kitchenham, 2011). Trying to provide a more working definition, Bliuc, et al. (2007) suggests

that blended learning is any educational system that systematically combines face-to-face interaction with technologically-mediated interaction between “*students, teachers and learning resources*” (Bliuc, et al., 2007. p. 234). In comparison, Kitchenham (2011) went beyond the emphasis on online technologies to virtually including every piece of software or hardware that is employed to “*enhance interaction, flexibility, and to increase student engagement*” (ibid. p. 28), blurring by that any confines that might set blended learning different from CALL. In fact, blended learning was regarded as synonymous to CALL until recently when a separate definition was a needed to make a clear distinction between purely distant online learning and the partial integration of online components in a traditional face-to-face learning environment (Bliuc, et al., 2007).

Other definitions focused on the distribution of learning between face-to-face environment and online environment, and the time allotted to each one of them. Kitchenham (2011) suggests that face-to-face component should count for “*75% or 50% of the course, with the remaining time requiring an online component that is coherently integrated into the course in a purposeful manner*” (p. 29). In the same way, Watson et al. (2010, cited in Graham, 2016) set a threshold of a minimum 30% online material delivery or interaction integration for a course to be considered blended, whereas for Graham (2016) blended learning encompasses any online integration rate that lies between the 30% and 70% of the course’s time. Additionally, other blended learning definitions emphasized the need for face-to-face class time reduction (ibid.). Meanwhile, Garrison & Vaughn, (2008, cited in Kitchenham, 2011) assert that more than mere distribution of learning between two different environments where technology is introduced in an add-on manner, blended learning represents a reconceptualization of how we conceive teaching and learning methods as it is “*a coherent design approach that openly assesses and integrates the strengths of face-to-face and online learning to address worthwhile educational goals*” (ibid. p. 29). Hence, be it “*combining instructional modalities ... combining instructional methods ... [or] combining online and face-to-face instruction*” (Graham, 2006, p. 6), blended learning should capitalize on quality and effective employment of different modes of learning (ibid.) and avoid at all costs integrating the two modes in a way that one learning environment is layered on the top of the other in an add-on manner (Garrison & Kanuka, 2004). Still, it should be pointed out that the failure to come up with a precise definition for blended learning and resorting to stretchable broad conceptualizations are amongst the main reasons this model is so accepted and prevalent as different institutions see blended learning from the perspective that suits them, accommodates their needs, and meets their objectives (Grahame, 2012).

As blended learning is turning fast into the new normal, educational institutions will face the new challenge of how to implement it rather than whether to blend or not (Grahame, 2012). However, such a task may vary according to the needs and objectives of the adopting entity, as according to Hughes (2005, cited in Kearsley, 2013, p. 299) there are three level at which technology integration occurs

- a) *'Technology as replacement' when technology substitutes for other instructional methods to serve the same instructional goal.*
- b) *'Technology as amplification' involves increasing the efficiency and effectiveness of task performance without changing the task or tasks in question or the overall instructional goal.*
- c) *'Technology as transformation' that can change students' learning experiences and roles in addition to teaching practices and teacher roles.*

Talking about the degree of technology integration leads us to addressing different approaches associated with blended learning implementation; however, this is no easy task, as different conceptualization and interpretations of the model resulted in myriads of multi-layered classifications, therefore the researcher will stick to the most comprehensive and widely accepted one. As it can be observed in table 2.1.3 below, Staker et al. (2011, cited in Grahame, 2012) identify six models of blended learning that differ in terms of the degree of technology integration in the course, the environment in which technology is used (in-class or out of the classroom), and the roles assigned to technology, teachers, and students.

Model Description	Model Description
Face-to-Face Driver	<ul style="list-style-type: none"> • Face-to-face (F2F) teachers deliver most of the curricula. • F2F teacher deploys online learning case by case to supplement or remediate.
Rotation	<ul style="list-style-type: none"> • Students rotate between an online self-paced environment and a traditional teacher-led classroom. • the online portion can be remote or on-site at the school. • the F2F teacher usually oversees the online work.
Flex	<ul style="list-style-type: none"> • Online platform delivers most of the curricula. • F2F teachers provide on-site support as needed.
Online Lab	<ul style="list-style-type: none"> • Online platform delivers the course in a brick-and-mortar lab environment. • Students interact with an online instructor around course content. • A paraprofessional supervises but provides little content expertise.
Self-Blend	<ul style="list-style-type: none"> • Students choose to take online courses to supplement on-site curricula. • Online learning is remote and traditional courses are F2F.
Online Driver	<ul style="list-style-type: none"> • Online platform and remote teacher deliver all curricula. • Students work remotely. • F2F check-ins are sometimes optional and other times required. • Some programs allow for participation in traditional extracurricular activities.

Table 2.2.3: K-12 Blended Learning Models Identified by Staker, Chan, Clayton, et al. (2011, cited in Grahame, 2012, p. 337)

First, Face-to-Face Driver model is designed to accommodate different ability classes, where students with mastery level above their grade are given more challenging online tasks

that allow them to progress at an appropriate pace, whereas struggling learners are given the chance to review the materials and receive the needed remediation and practice until they master the content (elearningindustry.com; dreambox.com). Second, Rotation model alternates learning experience between two modalities (Face-to-face and online) at a fixed schedule or at teachers' discretion, still some modalities include other stations such as small-group or full-class instruction, group projects, individual tutoring, and pencil-and-paper assignments (elearningindustry.com; christenseninstitute.org). This model in particular has a number of variations, that include

- a) **Station Rotation:** students rotate between different stations within the same space or classroom, either individually or in groups. The stations range from independent online study to teacher-led instruction (blog.wowzers.com; educatorstechnology.com).
- b) **Lab Rotation:** it is similar to station rotation; the only difference is that students move to a separate computer laboratory to carry out the online learning activities (educatorstechnology.com).
- c) **Individual Rotation:** unlike the two previous models, students rotate individually between different stations, that are either scheduled by the teacher or a computer algorithm that tracks their progress and what they need to do next (christenseninstitute.org; blog.wowzers.com).
- d) **Flipped Classroom:** a course in which passive teaching and learning practices are moved outside the classroom as learning materials are delivered to students online to review before coming to classroom, whereas class time is devoted to active learning.
- e) **Flipped Mastery:** it differs from flipped classroom in two main points, (1) the learning content is presented in the form of a playlist from which students can choose where to start and progress on their own pace, and (2) the online learning part may also take place at the classroom as students carry out more online activities.

Third, Flex model, which relies heavily on online delivery of learning content and activities with occasional offline learning activities, each student has a personalized playlist based on his/her needs and objectives as set by him/her and the teacher (elearningindustry.com; christenseninstitute.org). Under this self-guided learning model, the teacher is no more the primary source of knowledge, as his/her main duties shift to supervising, facilitating, checking progress, and providing remediation when needed (elearningindustry.com; dreambox.com).

Forth, Online Lab that came as a response to the lack of teachers and resources shortage, students go to a computer laboratory to study fully online courses under the guidance of an online instructor and the supervision of onsite-teaching assistants (dreambox.com). Fifth, Self-Blend model, it offers regular students the opportunity to take online courses beyond their current grade level or courses that are not provided at the institutions where they study, this model requires highly independent and self-motivated learners (elearningindustry.com; dreambox.com). Sixth, the Online Driver model offers students the opportunity to carry out their learning fully online and receive feedback and remediation via CMC tools, though regular check-ins at school with the teacher might be required (dreambox.com). This model suits best individuals with physical disabilities or workers who need a more flexible time schedule than the school can offer (elearningindustry.com; dreambox.com). Other models that are not listed in the table above include “A La Carte model”, where students take some courses at the campus and others fully online based on their preferences (blog.wowzers.com), and Enriched Virtual Programs model in which student are required to take some face-to-face sessions at a brick-and-mortar site before completing the rest of the course online (blog.wowzers.com; christenseninstitute.org). Under this model, the teacher who carries out the face-to-face sessions is often the same one who provides online sessions (ibid.).

Blended learning represents the natural evolution from current traditional methods as it accentuates merits of CALL to help surmount hindrances that characterize traditional teaching practices (Thorne, 2003) in order to deliver “*the right content in the right format to the right people at the right time*” (Singh, 2003, p. 52). Having the potential to become one of the main landmarks of the twenty first century (Thorne, 2003), blended learning’s potentials are limitless as it allows the creation of a “*learning experiences that can provide the right learning at the right time and in the right place for each and every individual*” (ibid. p. 31) despite space and time constraints as merging these two learning modalities allows students and teachers more flexibility across a range of aspects including “*time, location, delivery method, and the communication style*” (Kitchenham, 2011, p. 2). Besides being advantageous over committing oneself to one single method in terms of “*(1) improved learning effectiveness, (2) increased access and convenience, and (3) greater cost effectiveness*” (Graham & Dziuban, 2008, p. 270), blended learning offers didacticians the opportunity to rethink and redesign teaching and learning experience in ways that are impossible under other modalities (Garrison & Kanuka, 2004) to capitalize on the idea that “*learning is a continuous process*” (Singh, 2003, p. 57). However, it is not enough to deliver

old content through a new medium (Garrison & Kanuka, 2004), thus thinking of suitable content and effective pedagogical practices are vital factors for blended learning experience to succeed.

2.2.8 Futuristic Trends

Similarly to the ever-changing technology world to which it is related, CALL is highly dynamic as emergent trends change status to established materials in no time (Levy & Stockwell, 2006). This change is not only driven by the advance of technology that offers options for improvement, but it is also dictated by the limitation of the current CALL that could not fulfil all the expectations placed on it when it first emerged. The endeavour of overcoming the issues impeding CALL from claiming a permanent position in EFL learning environment pushed scholars and software developers towards exploring other options and try to make full use of the insufficiently exploited technologies, namely Internet 2.0 and Artificial Intelligence. While online learning and knowledge delivery are booming, Artificial Intelligence in educational settings is making remarkable progress, especially with cutting age technologies such as Natural Language Processing (NLP).

2.2.8.1 Online Learning

Being one of the major features of integrative CALL, online learning refers to *“learning through educational material that is presented on a computer connected to the internet”* (Liu, 2013, p. 40). This type of CALL makes use of the internet to enable the interaction between the learner, the instructor, the content, and other learners. Furthermore, thanks to the use of the Web as medium, online learning may be used within the confines of one classroom or to reach learners virtually anytime and anywhere in the world (Ally, 2008; Khan, 1997). Hubbard (2009) explains that online learning can be manifested in a number of ways including

- *independent learning through the Internet,*
- *recorded or programmed materials delivered online with or without CMC linkage to instructional assistance,*
- *one-to-one synchronous tutorials,*
- *the same class taught face-to-face to some but remotely to others,*
- *classes taught partly face-to-face and partly online (so-called hybrid or blended learning),*
- *and classes taught synchronously to a group entirely online or any combination of the preceding.*

(ibid., p. 12)

The aforementioned classification set by Hubbard (2009) blurs boundaries between online learning and blended learning, as it presents one as a subcategory of the other. Therefore, it should be pointed out that online learning is any teaching and learning experience that relies on online delivery of learning materials and CMC based interaction, whereas any incorporation of face-to-face component turns the whole experience into a blended learning.

Though, some tend to use the terms online learning and eLearning interchangeably, Seljan (2006) confirms that eLearning is more of a generic term that encompasses not only the use of the internet but also other technological tools as the “*‘e’ stands for electronic, which embraces all aspects of ICT from using a word processor for producing printed hand-outs to a full blown online course wrapped up in a Virtual Learning Environment (VLE)*” (ibid., para. 11). This is in line with the argument put forward by Liu (2013), who opines that eLearning “*refers to an alternative method of teaching and learning using electronic media, such as the internet, networks, audio/video tapes and CD-ROM (Compact Disc Read-only memory)*” (ibid., 41). Therefore, it is safe to say that the term eLearning is synonymous to CALL, as it is an umbrella term that encompasses any use of technology for teaching and learning purposes. Whereas, online learning is limited to the use of internet, networks and, online technologies to deliver, create, foster, and facilitate learning materials delivery and interaction between learners and teachers, and learners themselves (Mason & Rennie, 2006).

Changing the medium of interaction (internet) necessitated changes concerning the nature of learning materials and the way they are presented, as face-to-face teaching techniques are deemed unsuitable for online learning. Garrison and Vaughan (2011) admit that online learning has some specific features of its own, yet they assert that it is not totally different as teachers can still combine face-to-face techniques with what they termed online approaches to achieve a greater coherence. The incorporation of online learning has been proved able to improve a number of areas including

- *weaving throughout all the materials the voice of the language learner and teacher through video, audio, image and text;*
- *allowing learners to work through key areas at their own pace;*
- *allowing learners to return to lessons through units in a linear fashion but also jump ahead and go back to materials when needed;*
- *providing a permanent resource learner could review and use long after the course had finished;*

- *encouraging active and reflective learning through materials that ask learners to process information, test their understanding through activities and receive feedback;*
- *making full use of multimedia (audio and video) to provide lots of language input in a varied range of contexts;*
- *and fostering a socio-constructivist approach to learning through integrated collaborative activities.*

(Tomlinson & Whittaker, 2013, p. 119)

So basically, online learning promotes a number of aspects, including (1) mastery based learning as learners get to review learning materials as often as they need to until they master them before moving to the next stage; (2) personalized learning as learners move on their own pace without being held back or rushed by the collective performance of their classmates; and (3) students' agency as learners are allowed to take part in making decisions such as setting objectives and choosing what aspects to start with.

Addressing the advantages of online learning, Littlejohn and Pegler (2007) argue that it *“offers the possibility of changing our attitudes not only as to ‘where’ and ‘when’ learning takes place, but in terms of ‘what’ resources and tools can support learning and the ways in which these might be used”* (p. 2), Hofmann (2011, cited in Tomlinson & Whittaker, 2013) adds that online learning can minimize costs, maximize technological use, eliminate geographical restrictions as well as time constraint, and increase instructional values; according to the same scholar, the tools are already in place and all that remains to be done is to take advantage of what technology has to offer. Seljan et al. (2002) note that online learning can affect teaching in terms of three areas including

- *course management and administration (grading assignments, students attendance, communication between student and teacher, etc.);*
- *delivery of content (up-to-date content students can access, multimedia materials in targeted language);*
- *target language communication (opportunities to interact in the target language with other students, tutor and native speakers);*

(Seljan et al., 2002, p. 74)

Furthermore, they suggest that online learning is suitable for learners across all levels and ages including adults. Nevertheless, online learning comes with its drawbacks as the lack social contact might plunge learners in an environment of isolation and disconnection from real word.

Additionally, hardware and software breakdowns represent a huge setback for online learning, as frustrated learners may just give up and drop out of the course. Furthermore, online learning is for the highly motivated and strong hearted individuals who are truly committed to their learning pursuit, thus according to Onah et al. (2014) only 13% of learners who enrol in fully online courses do actually complete the course.

By eliminating the need for physical presence in a brick-and-mortar classroom, online learning open the doors for possibilities never dreamt of before. Learners with physical disabilities can pursue their education in a normal manner, disadvantaged students can get degrees from world leading universities without the need for a fortune to travel abroad, and even universities with the tightest budgets can provide their students with the opportunity to attend lectures of the most distinguished scholars through videoconferencing. Online learning can help overcome a number challenges currently faced by education and virtually put everybody on an equal footing to get engaged in academic pursuit at the highest levels without being hampered by space, time, or financial barriers.

2.2.8.2 ICALL

As technology is evolving on a daily basis, Artificial Intelligence (AI) is becoming more of a regular feature in software across all the different fields, especially economic ones. Successful applications of AI enabled the computer to pass some IQ tests and reach average club levels at chess, the fact that made CALL practitioners believe that exploiting this promising area is the next step for CALL resulting in the emergence of a subfield dubbed Intelligent Computer Assisted Language Learning (ICALL). Warschauer and Healey (1998, p. 65) define an ideal ICALL software as a

“software that uses the power of the computer to offer easy interaction with the material to be learned, including meaningful feedback and guidance; comprehensible information in multiple media designed to fit the learning style of individual students; and ways for students to carry communication beyond an individual computer screen.”

So basically, an ICALL software is a one that is able to guide students throughout the learning process, and is intelligent enough to adjust the learning experience to suit students’ learning styles, react to learners’ responses, offer suitable feedback, and at some level communicate with the student.

Most of the efforts in CALL have been dedicated to the enhancement of graphical aspects and user interface⁴, yet that is not enough to make CALL intelligent as software should guide the user throughout the process of learning and help them at every step without depriving learners from the control over the software. Furthermore, in order for ICALL to claim its intelligence status, it must help learners *“with more than the mechanics of operating a software program. They [learners] also need to know how to make the best use of it for their own purposes”* (Warschauer & Healey 1998, p. 65), ICALL must help learners choose the appropriate learning strategy to use the software effectively. Software that just provide learners with information and do not help them contextualize it or just respond by “right” or “wrong” are the least efficient, let alone intelligent. Thus, ICALL must

“track learner answers and look for patterns, responding not only with whether the answer was correct but also why it was right or wrong and offering suggestions for further study-going on to a more advanced level or doing some extra work at the current or a previous level.”

(ibid., p. 66)

The current CALL software can handle a limited number of exercises’ types and their feedback is based on matching learners’ answers to pre-stored models. However, ICALL developers aim at a more responsive and adaptive type of software that can unequivocally analyse learners’ output and provide a detailed, precise, and individualized feedback regardless to the indefinite number of possibilities (Amaral & Meurers, 2013). In other word, *“The learner should not be obliged to follow any pre-ordained pattern of instruction”* (Cameron, 1988, p. 70). In addition, extracting meaning from text or speech, sentence parsing, and recognising ill-formed sentences and utterances are other challenges for ICALL developers to get a step closer to the desired intelligent tutoring systems and overcome the problems faced by current CALL (Amaral & Meurers, 2011). If such a level of AI was achieved, classroom instruction would be entirely devoted for meaning-based activities, whereas mechanical aspect can be dealt with using ICALL software.

ICALL software are expected to be able to direct the learning process taking into consideration a number of variables including

⁴ *The way software is written so that users understand how to operate it.*

- *“the learner: level, age, LI, maturity, knowledge of grammatical terminology, motivation to perform the activity, etc”* (Dornyei, 2005, cited in Amaral & Meurers, 2011, pp. 10-11).
- *“the task: type of activity (reading, listening, composition writing, etc.), type of question item (wh-question, fill-in-the-blanks, link the columns, etc.), level of question in relation to level of student, time available, material to be consulted (dictionary, grammar book, internet), etc”* (Willis & Willis, 2007, cited in *ibid.*).
- *“the language: grammatical competence exhibited by the linguistic properties of the learner language (lexical, syntactic, semantic, pragmatic), the nature and type of deviations in ill-formed utterances (duplication of letters, agreement, wrong synonym, lack of anaphoric reference, etc.), level of learner language in relation to scales of language complexity and development, as well as sociolinguistic, discourse, and strategic competences”* (Canale & Swain, 1980, cited in *ibid.*).

As AI is still groping its way into education, only few ICALL software could meet the standards, and even fewer are deemed efficient enough to be integrated in EFL classroom. ICALL manifests itself in a number of software and applications, yet the most advanced one so far is Natural Language Processing (NLP), which is the major interpretation of AI in the field of ICALL. As its major target field is computer-human interaction, NLP, According to “stanford.edu”, is algorithms that allow computers to process and understand human languages and covers a number of areas including sentence understanding, machine translation, probabilistic parsing and tagging, grammar induction, word sense disambiguation, and automatic question answering. The large number of technologies that are classified under NLP made it more of a subfield of ICALL than a mere technology, as research in NLP resulted in a number of applications that are directly related to solving real-world problems. The current NLP applications, according to “microsoft.com”, include

- **Automatic summarization:** *Produce a readable summary of a chunk of text. Often used to provide summaries of text of a known type, such as articles in the financial section of a newspaper.*
- **Co-reference resolution:** *Given a sentence or larger chunk of text, determine which words ("mentions") refer to the same objects ("entities"), matching up pronouns with the nouns or names that they refer to, identifying so-called "bridging relationships" involving referring expressions.*

- **Discourse analysis:** *identify the discourse structure of connected text, as well as recognizing and classifying the speech acts in a chunk of text (e.g. yes-no question, content question, statement, assertion, etc.).*
- **Machine translation:** *Automatically translate text from one human language to another.*
- **Morphological segmentation:** *Separate words into individual morphemes and identify the class of the morphemes.*
- **Named entity recognition (NER):** *Given a stream of text, determine which items in the text map to proper names, such as people or places, and what the type of each such name is (e.g. person, location, organization).*
- **Optical character recognition (OCR):** *Given an image representing printed text, determine the corresponding text.*
- **Part-of-speech tagging:** *Given a sentence, determine the part of speech for each word.*
- **Parsing:** *Determine the parse tree (grammatical analysis) of a given sentence.*
- **Question answering:** *Given a human-language question, determine its answer.*
- **Relationship extraction:** *Given a chunk of text, identify the relationships among named entities (e.g. who is the wife of whom).*
- **Sentence breaking** *(also known as sentence boundary disambiguation): Given a chunk of text, find the sentence boundaries.*
- **Speech recognition:** *Given a sound clip of a person or people speaking, determine the textual representation of the speech.*
- **Speech segmentation:** *Given a sound clip of a person or people speaking, separate it into words. A subtask of speech recognition and typically grouped with it.*
- **Topic segmentation and recognition:** *Given a chunk of text, separate it into segments each of which is devoted to a topic, and identify the topic of the segment.*
- **Word sense disambiguation:** *as words have more than one meaning, Word sense disambiguation select the meaning that makes the most sense in context.*
- **Text-to-speech:** *enables the user to select any type of text document (be it AZW, AZW3, CHM, DjVu (DjVu+OCR), DOC, DOCX, EPUB, FB2, HTML, LIT, MOBI, ODT, PDF, PRC, RTF or PowerPoint depending on the chosen program) and listen to it as it is being read.*

More control over media is also a major goal for ICALL, research in this respect resulted in video concordance software, which is still underdevelopment yet some prototypes are already being tested. Thanks to this ICALL technology “*Teachers or learners can query the video concordance with a word or phrase, and it will cue up video clips containing that word or phrase for playback*” (Warschauer & Healey, 1998, p. 66). The ability of video concordances to analyse the audio files of the video and locate the target word(s) is expected to be a major hit in language

teaching, as it will help teachers locate video clips with a specific topic or register, and save them a considerable amount of time usually spent watching different videos just to locate the one with needed register.

What is hoped by the integration of AI in language learning and teaching is to fulfil early promises unfulfilled by current CALL, which is a piece of hardware or software that assumes teacher's role and even plays it more efficiently. As CALL fell short in a number of areas of language teaching and learning, ICALL is regarded as the magic wand that will help overcome all the issues imposed by the limitations of its predecessor, yet the current ICALL applications are not efficient enough to claim a permanent position in EFL classroom. Though AI is a reality, most of ICALL features discussed above are still experimental and others are mere future projects, however this does not mean that the realisation of such software is impossible. Categorisation of ICALL within AI kept LT community uninvolved, yet if the dream of a fully functional ICALL software is to be realized, a full collaboration of computer programmers and LT practitioners is more than a necessity.

With the current move from industrial age to information age, the question is changing from "*what is the role of information technology in the language classroom?*" to "*what is the role of the language classroom in the information technology society?*" (Hubbard, 2014a). With English getting more importance by playing the role of lingua franca in this technological age, the bar for EFL teachers are raised higher than ever, as they are expected to shoulder the responsibility of preparing students for future challenges and assume an active role and thrive in a networked society. A goal that can only be realized with a full and effective incorporation of the most advanced technologies and exploration of other options in a systematic and well-planned manner to help cater for the demands and needs of learners.

2.2.9 Advantages of CALL

Since the emergence of CALL, an abundance of studies and researches have been published to point out its advantages that helped improving EFL teaching and learning processes. CALL is believed to be able to help overcome a number of problems previously considered major hindrances in EFL classroom (Barson & Debski, 1996; Chapelle, 1997; 2003; Salaberry, 1999; Warschauer, 1996; 1997; 2002; 2004; Warschauer & Healey, 1998; Warschauer & Kern, 2005; Yang, 2008). The major advantage of CALL is its ability to provide instant feedback to learners; Kenning and Kenning (1983, p. 2) maintain that

“The unique property of the computer as a medium for education is its ability to interact with the student. Books and tape recording can tell a student what the rules are and what the right solutions are, but they cannot analyse the specific mistake the student has made and react in a manner which leads him not only to correct his mistake, but also to understand the principles behind the correct solution”.

CALL’s instant reaction to learners’ answers helps promote their interest, motivation, and confidence (Skinner & Austin, 1999) and encourages them to spend more time on the activity as they incorporate more than one macro skill while working on it (Warschauer, 2004; Khamkhien, 2012). As for its Repeatability, Taylor (1980) refers to the computer as *“a tireless workhorse”*. Thus, unlike teachers, computers can repeat the learning materials, receive learner’s response to the materials, provide feedback, and repeat the same operation all over again until the learner is satisfied with the outcome.

Additionally, the interactivity of CALL makes learning a more appealing experience for learners by turning any boring drill activity into a funny game, *“an interactive element which is missing in books, tapes, television, and so on”* (Hubbard, 2004, para, 7). By the same token, Chen (2005) confirms that CALL programs *“... teach the language in different and more interesting, attractive ways and present language through games and problem-solving techniques. As a result, even tedious drills can become more interesting”* (Chen 2005, p. 433). According to Beatty (2003), interactivity in CALL manifests itself in multiple forms including *“choosing the learning materials, using the references sources, checking comprehension of language input and reacting to feedback of one’s productive efforts”* (ibid., p. 157). CALL interactivity can help promote learners autonomy, thus due to the interaction with the learning material, learners are far away from being passive as they find themselves obliged *“to think about the language, engage with it and to respond to it”* (ibid., p. 157). Another important point is that

“in the immediate future – the next five to ten years – the frontier in language learning and technology will not be found in what program does what better, but rather which students use off-the-shelf technology to best facilitate their own learning in their own learning style”.

(Robin, 2007, p. 109)

Pointing by that another advantage of CALL that is the personalization of the learning experience.

Being adaptable to fit within a variety of situations and for multiple purposes, CALL is viewed as a very flexible tool. Addressing this asset of CALL, Beatty (2003) argues that CALL's flexibility makes it useful in

“a variety of ways within different learning situations ... as a self-access resource is one of the most common and obvious. These materials can be linked into courses, syllabuses, assigned to learners for homework or as follow up activities to work undertaken in classroom sessions. ... [they] can also be used by teachers to help in their lesson preparation, providing texts, sound, digital video, grammar or vocabulary exercises that can be used in class.” (ibid., p. 161)

Additionally, by providing learning opportunities to virtually anyone, at any time, and anywhere, especially through online learning (Pérez, 2012), CALL might be the solution for EFL learners with physical disabilities or adult learners with professional or family obligations who need a more flexible schedule than educational institutions can offer (Sophocleous, 2012). Furthermore, in a learner centred classroom, CALL comes handy as it facilitates the individualisation of learning materials by adjusting them according to learner's proficiency, pace, needs, and learning style (Khamkhien, 2012). Besides, CALL is believed to be an invaluable tool for fostering peer-collaboration, since that learners tend to *“provide peer tutoring”* (Motamedi, 2011, p. 5) to one another and they get so excited when they do so, because students derive a sense of pride and enjoyment when they succeed in helping one another or teaching something to their peers (ibid.). CALL also helps create an authentic learning environment by bringing real life elements and situations into language classroom, allowing by that learners to experience language in its most realistic forms.

The fact that CALL gives students a sense of control over their learning by enabling them to take the decision of *“what to study, when to study, how to study, how long to study”* (Beatty, 2003, p. 178), in addition to the options of reviewing information and repeating the drill until they are satisfied with the outcome, it provides opportunities for mastery based learning and boosts students' autonomy as they are given the opportunity to be responsible for their own learning, and results in students' satisfaction with their learning process (Duggan et al., 2001). Furthermore, the learner can stop once s/he feels unable to process more information and come back later on to continue from the point where s/he stopped previously. All this in a judgement-free environment where self-consciousness and shyness are reduced as learners are not exposed and their mistakes are addressed objectively (Ortega, 1997). Stressing the fact that CALL application can promote learner's autonomy, Fang (2002) points out that *“in general, technology*

can be a valuable tool for autonomous learning, providing help in setting goals, making progress toward achieving them, and gathering information for self-assessment.” (Fang, 2002, p. 16). Though CALL effectiveness in nurturing learner’s autonomy has not been sufficiently addressed, empirical studies (Brett, 1998; Benson & Voller, 1997) claimed that multimedia and internet could be very effective tools to promote this affective construct. Both teachers and educational institutions share the burden of encouraging autonomous learning by providing students with the needed CALL equipment along with guidance and training on how to exploit them effectively.

Owing to CALL, learners are practically one click away from any piece of information they need, and that is mainly through internet, which enables learners to access a large variety of resources derived from multiple sources. Furthermore, materials available on the internet are free or at low cost, current, and can be accessed anytime and anywhere (Hubbard, 2004). Thus internet, according to Al-Jarf (2005, p. 12), is *“inherently interesting, incorporates multi-sensory uses of media, provides enormous numbers of connections to other sources of information and interaction”*. Thanks to the internet, teachers and learners can access information sources, which were previously impossible to reach. Likewise, the internet helps expand learning environment beyond the confines of the classroom and enables constant interaction between teachers and learners and learners themselves. It also provides learners with the opportunity to interact with native speakers and other EFL learners from across the globe to further practice and hone their skills. Similarly, the internet can also be employed to promote learners’ awareness of cultural aspects of the target language, which are part and parcel of EFL learning process (Salomon, 1991).

CALL can also enhance teacher professional development through practice sharing, as teachers can record a lesson through either video recorder or screen capturing software and share it with other colleagues who may refer to it as model lesson, or simply through sharing lesson sheets and plans in form of Word, PDF or PowerPoint (Beránková et al., 2011). Academic research and scientific collaboration can be nurtured by online group discussions either through common social networks, Cloud computing, or through specialized websites that operate as *“clearinghouse for teachers looking for partners in other countries for keypal exchanges or collaborative projects”* (Hubbard, 2014b, para. 5). Besides, learners’ cooperation may also be fostered through CALL that might be employed to

“... promote collaborative and project work, build knowledge, maximize the participants' experience, increase equity of participation, and allow cross-cultural participation, develop reflective writing skills, and overcome social isolation.” In addition to providing access to *“help, support, feedback, active and interactive participation, freedom from constraints of time and location, and learner control.”*

(Al-Jarf, 2005, p. 11)

If used strategically and managed wisely, CALL could save teachers a lot of time traditionally spent on passive tasks of little impact on students' learning experience, such as dictating the lesson or writing it on the whiteboard. Whereas outside the classroom, teachers may find worksheets, lesson plans, and other readymade teaching materials published online, and adapting those valuable resources to meet their students' needs may spare teachers the agony of doing it from scratch using the traditional resources (books). This regained valuable time may be invested in addressing more urgent needs of students and designing extra activities to promote active learning and foster students' underdeveloped skills. Besides all the aforementioned advantages, CALL develop learners' computer literacy and get them acquainted with the use of technology, a pivotal skill in our modern society that is highly demanded for any professional pursuit. Throughout the last three decades a great deal of research has been devoted to pointing out CALL advantages, not to emphasize CALL's superiority over human teachers but to find ways through which we can facilitate CALL incorporation and make teaching/learning process more effective, more appealing, and less demanding.

2.2.10 Disadvantages of CALL

Despite the long list of CALL's advantages, still there are disadvantages that cannot be overlooked. The major shortcoming of CALL is its inability to make a full use of what current technologies have to offer. Despite the huge technological advancement, CALL is still unable to replicate teacher's capability to accommodate to unpredictable and changing situations and adapt learning material so that it meets learners' needs and abilities, and that is because computer programs are pre-programed and not able to cope with unexpected scenarios (Chapelle, 1997; Skinner et al., 1999; Warchauer, 2004; Kanoksilapatham, 2009). Furthermore, being an emerging discipline, CALL software developers have a long way to go as teachers have hard times looking for suitable materials for their learners, or simply get disappointed with the program that often does not meet their expectations. In addition, even for enthusiasts who

opt for creating their own CALL tools, coding is a very hard skill to master let alone the time and effort that it takes to design and build a learning software. Besides teachers, CALL can be time consuming for students as well especially for those who are not familiar with computers as they may waste valuable time before they can manipulate the mouse and keyboard properly, no need to mention getting acquainted with the software itself and the way it functions (Sadeghi, 2013).

Lack of training is another major hurdle in the process of CALL diffusion in EFL classroom, as basic ICT literacy of teachers make them feel uncomfortable handling a computer particularly in front of their students, as any mistake or failure to handle technology on the part of the teacher might be regarded as a sign of incompetence. One further issue to consider is the cost, as CALL might be beyond the financial abilities of some countries and institutions where maintaining and equipping educational institutions with appropriate hardware, software, and network as well as providing the necessary training for teachers is simply unaffordable especially in rural areas (Khamkhien, 2012). The main purpose behind learning a language is communication yet working on computers individually may result in anti-social behaviour on the part of learners whose only partner is a machine (Egbert, 2004), as a result *“Learners may get ‘wrapped-up’ in the program and focus on learning the language in isolation”* (ibid., p. 84). Additionally, no matter how good a CALL program is, if it is not used properly or even underused, the program simply will not meet the set objectives. CALL programs are equipped with different features designed for different purposes, and for full benefit, students as well as teachers must be made aware of all the features and their functions in addition to when and how to use each function. The fact that brings us back to the need for training as not all CALL tools provide users with the needed guidance and support. Hence, in order to avoid this “Underutilisation of Resources”, CALL user must know whether the program is for a single user or for group use, and whether it functions as a tutor or a tool (Egbert, 2004).

Technical problems are another major issue to consider. Computer breakdowns, internet connection problems, incompatibility of programs, viruses, or simply electricity power failure may result in the failure of the whole lesson. In addition, unsuccessful attempts made by the teacher to cope with such problems may be interpreted by students as a lack preparedness. Another downside of CALL is overreliance on technology. Thus, some teachers rely solely on published materials to use them as worksheets and lesson plans; and finding everything readymade, these teachers hardly ever bother to prepare their own. Teaching process entails a lot of learning, and preparing the lessons represents a great deal of this learning process as

through searching and consulting different sources teachers learn new practices or at least update their information. Equally important, being one of the most recommended and widely used CALL tools does not make the internet immune to problems. Hence, Hubbard (2014a) listed a number of issues to be taken into consideration, including:

- *Text-based material on the web is often not as easy to read as material in paper format because of monitor resolutions and font and background choices.*
- *Sound and video often take a noticeable time to transfer, even on fast connections. Streaming improves this, but the web is still not as responsive as a CD-ROM.*
- *Sound and video are typically compressed to speed up transfer and are thus of noticeably lower quality in some cases.*
- *Because of the way that HTTP (Hypertext Transfer Protocol) works, on most pages every click is a request that has to go back to the original server. The equivalent of turning a page may take several seconds or more if the server is busy.*
- *Because of this delay, interactivity is limited compared to what is possible with disks or CD-ROMs.*
- *Down servers or broken links may lead to frustration.*
- *The sheer amount of material sometimes makes it hard to find what you want.*
- *The web is dynamic and often as unpredictable as the humans behind it. You may find an old site that has not been updated for years, or you may find a great source of material only to have it be gone the next time you look for it.*
- *Sites and applications that used to be free are increasingly charging fees.*
- *The accuracy of web sources is often questionable.*

(Hubbard, 2014a, para. 5)

Therefore, despite all its advantages, reliance on the ever-changing internet comes with a cost. One issue overlooked by Hubbard (ibid.) is the validity and reliability of materials found on the internet especially academic publications, as virtually anyone with a computer and internet connection can open a website or a blog and upload different materials on it, and the verification of the source of these materials and their credibility is not always possible.

CALL materials might also have harmful consequences on users' health, especially back problems and sight that can be impaired as a result of spending long time in front of computers and other technological devices that are equipped with screens. Another major disadvantage is the mindset of some CALL enthusiasts who see in CALL the silver bullet that can stand on its own carrying all the work and exclude the teacher from the equation. Individuals

with such an attitude do more harm to CALL's image than good, as they fail to see the outstanding results achieved by a number of leading educational institutions when ICT has been strategically interwoven into face-to-face instructional methods to enhance the strengths of both modes and get the best of both worlds. To sum up, it is obvious that the advantages of CALL outweigh its disadvantages by far. Yet, this does not mean that what has been achieved is satisfactory, hence we still have a long way to go. In order to overcome the disadvantages and reinforce the advantages, instructors, didacticians, software developers, and policy makers must work in collaboration to make full benefit of what technology has to offer for the sake of a more effective educational system.

2.2.11 CALL Evaluation

Since its inception, the field of CALL faced criticism questioning whether it has anything to offer to the world of language teaching/learning. Silencing this sceptic views necessitated the foundation of comprehensible model of evaluation that functions as a benchmark against which CALL materials can be measured and judged. Yet the task was never as easy as it sounds, thus unlike textbooks which are *“relatively straightforward to evaluate because they tend to have a transparent structure allowing teachers to skim through them to get an overview of the organization and content”* (Ducate & Arnold, 2006, 92), software are multifaceted structures, the evaluation of which encompasses a systematic examination at several levels including *“ease of use, quality of the user interface, screen design and organization”* (ibid.). Ducate and Arnold (ibid.) refer CALL evaluation to

“the process of (a) investigating a piece of CALL software to judge its appropriateness for a given language learning setting, (b) identifying ways it may be effectively implemented in that setting, and (c) assessing its degree of success and determining whether to continue use or to make adjustments in implementation for future use”. (p. 94)

Therefore, evaluation phase is virtually present in any attempt to use a CALL tool, either at individual or institutional level. This sine qua non step begins once the software or hardware is used for the first time, continues until the user forms an overall idea about the tool's characteristics and potentials, and eventually make a decision to whether adopt, adjust, or simply reject the tool and keep looking for a more suitable or effective one.

The quest for a reliable framework of evaluation resulted in the inception of three different types, namely evaluation driven by checklists or forms, evaluation guided by

methodological frameworks for language teaching, and evaluation linked to second language acquisition (SLA) theory and research-based criteria (Levy & Stockwell, 2006). Each approach proved through time that it has its merits and faults. Existing since the earliest stages of CALL, checklist is typically “*a series of questions or categories for judgment and the evaluator is expected to make a response based on information gathered through the reviewing process*” (Hubbard, 2006, p. 316). Varying from simple yes/no questions to open ended questions, checklists were criticized for being judgemental and for their focus on technology at the expense of pedagogy (Hubbard, 1988). The mid-1980s witnessed the end of checklists’ dominance, as a new evaluation tool known as methodological framework was introduced to the scene. Methodological framework differs from its predecessor in terms of its descriptive nature, its embrace of teaching and learning as a central facet (Hubbard, 1988), and shedding the light on other important aspects including language difficulty, learner focus (i.e., skill area—listening, speaking, reading, and writing), and language focus (i.e., lexis, grammar, and discourse) (Hubbard, 2006).

Taking methodological framework theory in addition to findings from SLA and Communicative theory and interpreting them into CALL domain resulted in the emergence of a third evaluation framework labelled SLA-based Approaches (ibid.), which are regarded as the most reliable ones. Warren’s (2001) work known as CASLA (computer applications in second language acquisition) offered six general criteria against which the appropriateness of any CALL tool can be measured. The six criteria include

1. *Language learning potential: The degree of opportunity present for beneficial focus on form;*
2. *Learner fit: The amount of opportunity for engagement with language under appropriate conditions given learner characteristics including material difficulty, suitability and appeal;*
3. *Meaning focus: The extent to which learners’ attention is directed toward the meaning of the language;*
4. *Authenticity: The degree of correspondence between the learning activity and target language activities of interest to learners out of the classroom i.e. the resemblance of CALL task to real world language;*
5. *Positive Impact: The positive effects of the CALL activity on those who participate in it through increasing motivation or interest in the L2 culture and developing appropriate metacognitive skills such as goal setting and accountability;*
6. *Practicality: The adequacy of resources to support the use of the CALL activity and the overall ease of implementation of a program.*

(Warren, 2003, p. 83).

The main difference between SLA-Based approaches frameworks and its predecessors is the former's holistic view, as it addresses technical as well as pedagogical aspects. Moreover, it takes into account the technology, the learning materials, the learner, and the pedagogical methodology covering by that all the aspects that might affect CALL implementation experience either positively or negatively.

CALL evaluation frameworks are meant to help stakeholders, be they instructors, learners, or administrators, make the right decision and choose the appropriate piece of software and/or hardware that suits learners' needs and meets teachers' objectives. Computer's integration success is largely dependent on the used program (Daud, 1994). Yet, the considerable increase in software number and rapid technological development make CALL materials evaluation a complicated task as no well defined yardsticks are established. Teachers may find the available selection criteria a valuable means to ensure embarking on the right choice of CALL tools (Susser, 2001). However, with intensive and extensive use of CALL materials and the ensuing gained experience, CALL practitioners might be able to effectively set a personal list of criteria that best accommodate their particular context and serve their needs.

2.2.12 CALL Effectiveness

The potentials held by the promising field of CALL pushed many researchers to conduct studies in order to explore and measure its effectiveness. This process has been ongoing for decades, especially when CALL was still a novelty and some even wanted to prove that computers are superior to human teachers. The process of measuring CALL effectiveness varied as views of what constitutes language teaching and learning changed. CALL was looked at from three different second language acquisition perspectives, namely input perspective, output perspective, and interaction perspectives (Jung, 2003). Studies conducted within the input perspective, such as that of Dodd (1997), attempted to “*explain the meaningful input computers can provide for the learner*” (p. 140), yet their undivided focus on the positive effects of the computer compromised their reliability. Meanwhile, Nagata's (1998) study came within output perspective emphasizing the importance of comprehensible output. Whereas, the third line of effectiveness inquiry came under interaction perspective (e.g., Toyoda & Harrison, 2002), which supporters claim that “*linguistic input needs to become intake in order to be acquired by the learner*” (Ebrahimi et al., 2013, p. 4).

All the three aforementioned perspectives are deemed unreliable as they are merely product-oriented (Jung, 2003) and tend to neglect other influencing factors such as learners' characteristics and environmental conditions (Ebrahimi et al., 2013; Doughty, 1982). Based on this criticism, a number of environmental conditions that might influence students' learning and CALL effectiveness have been identified to form a framework that might be helpful for future research to form a fuller image of CALL in classroom. Moos (1974, cited in Jung, 2003, p. 11) names three conditions, "*(1) personal development, involving personal growth and enhancement; (2) system maintenance, which involves environmental order, control and change; and (3) relationship, which identifies interaction and support among participants in the environment*". Other elements of classroom environment are also suggested by Salomon (1998), including task, sense of control, teacher-student interaction, student-student interaction, atmosphere, and teacher behaviours. The work done by Moos (1974, cited in Ebrahimi et al., 2013) paved the way for other lines of research in the field of learning environments research including Learning Environment Inventory (LEI).

Research in CALL effectiveness can be also identified in terms of three categories (Felix, 2005). The first one includes the positive reports that portray CALL potentials and effectiveness across the different aspects of language (Kulik & Kulik, 1986; Basena & Jamieson, 1996; Kim, 2008; Park & Son, 2009; Wang & Wang, 2010; Lin et al., 2011; Ballester, 2012; Sophocleous, 2012). On the contrary, the second line encompasses dismissive reports that present CALL as a gamble of a little or no value to English language class (Tenson et al, 1992; Dunkel, 1991). Meanwhile, the third stream came to a conclusion that there is no difference between CALL and traditional way of instruction (Tokaç, 2005; Cellat, 2008). It should be pointed out that studies performed at college level have more positive results than those conducted at pre-college level, due to college students' ability to adapt to computer use in their learning (Kulik & Kulik, 1986).

This divergence in results has been referred to a number of factors including differences in size and composition of sample populations, poor choice of variables to be investigated, poor description of the research design, failure to investigate previous research, overgeneralizations and overambitious reporting of results (Felix, 2005; Roblyer et al., 1988). Addressing the contradictory results in two studies driven by Ojeda (1984, cited in Daud, 1994) and Ortmann (1984, cited in Daud, 1994) about CALL effectiveness, Dunkel (1991, cited in Daud, 1994) stated that in these studies

“The effect sizes of CAI over non-CAI for the ESL students in two of these studies offered contradicting evidence, though both studies used similar kinds of materials and the same measure of overall achievement (the California Achievement Test): Ojeda's study, whose subject was Spanish speaking students, yielded an Effect Size of -0.19 for the use of computers in teaching ESL, whereas Noda's study with Arabic/Chaldean students produced a robust, positive ES of 0.60 for teaching the language ... an ES could not be determined for Ortmann's (1984) data; however, the Hispanic students in the study achieved better gains than the Anglo children in both CAI and non-CAI groups, although the differences between gains for the Hispanic CAI and non-CAI groups did not differ to a significant degree.”

(Dunkel, 1991, cited in Daud, 1994, p. 219)

This contradiction about CALL effectiveness should be seen from a positive angle, hence it is a sign that there are attempts to integrate CALL in EFL classroom and facilitate its incorporation. Additionally, lessons can be drawn from successful CALL implementation attempts as well as from failures. Yet the futile comparative studies between CALL and face-to-face teaching that aim at imposing one to the exclusion of the other must be avoided, as there are other more significant aspects worth investigation. The body of literature proving CALL effectiveness outnumbers that suggesting the opposite, as evidence from a growing number of studies proposes that limitations are not always related to CALL itself, thus other factors, be they internal or external, might get in the way.

Though the full potentials of available technologies are far from being fully exploited, the link between EFL and technology has been already established (Lee, 2000). Literature revealed that CALL could be applied in all the different aspects of language learning and teaching and for different purposes. The considerable body of research conducted in CALL does not reflect its short 50 years of history, yet it is worth pointing out that the majority of these researches are mere attempts to prove that CALL is effective and worth a position in EFL classroom, or in other occasions that technology is superior to human teachers. The researcher opines that this is not relevant anymore, since that the current growing need is for studies that address rather pivotal issues such as how to successfully incorporate CALL in EFL teaching and learning, effectively merge CALL into face-to-face instruction, and make full use of potentials of the existing technologies. Similarly important, research should focus on democratizing CALL by making it accessible to everybody despite geographic, financial, logistic, technical, and pedagogical hindrances that might get in the way. Furthermore, it is

worth of note that the field of CALL is so vast and in a constant state of flux that covering all the aspects is way beyond the scope of this study, therefore the researcher attempted to cover the main aspects in order to provide the reader with a general yet informative image of this field.

2.3.1 Definition of Attitude

Regarded as a disposition that guides individuals' actions and behaviours (Jaccard & Blanton, 2004, cited in Bodenhausen & Gawronski, 2009), attitudes are the lens that determine the colour people perceive the external world. They are usually clustered in terms of good or bad, harmful or beneficial, pleasant or unpleasant, and likeable or dislikeable (Hassad, 2007). Attitudes are a complex construct that involves a number of subcomponents. Psychologists believe that attitudes encompass three main sub-constructs, including

- a. **An attitude object:** it is the entity towards which the attitudinal evaluation is made (Lieke et al., 2011). It might be a concrete physical thing, an experience, or an abstract idea.
- b. **A set of beliefs:** they are a set of judgmental assumptions (be they subjective or objective) held by the individual in regards of an attitude object (Culbertson, 1968).
- c. **A tendency to behave:** it is directed towards the attitude object and might be either favourable (keep) or unfavourable (remove) (ibid.).

The three subcomponents listed above are essential elements for an attitude to take a place, as the individual is exposed to an attitude object that s/he judges based on his/her beliefs, then depending on the evaluative judgement s/he behaves either favourably or unfavourably. Unable to observe it directly, researchers and practitioners could not agree on one decisive definition for attitude. This unobservable construct has been defined by Allport (1935, cited in Al-zaidiyeen & Mei, 2010, p. 213) as *“a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual’s response to all objects and situations with which it is related”*. Rather than an innate and inborn mental state, Fishbein and Ajzen (1975, cited in Cakir & Solak, 2014) and Aiken (1980, cited in Bai & Ertmer, 2008) refer to attitude as “learned predispositions” that lead individuals to respond either favourably or negatively to certain objects, persons, situations or ideas.

Attitude is also viewed as a reaction towards a specific object. In line with this claim, Albarracin et al. (2005, p. 4) states that attitude is *“a psychological tendency to view a particular object or behaviour with a degree of favour or disfavour”*. More than a psychological state or tendency, Schneider (1988, p. 179) maintains that attitudes are a set of *“evaluative reactions to persons, objects, and events. This includes your beliefs and positive and negative feelings about the attitude object”*. Emphasizing the evaluative nature of attitudes yet stressing their

durability that distinguishes it from transient feelings, Baron and Byrne (1987; cited in Zainal Abidin, 2011, para. 3) claimed that attitudes *“can be defined as lasting, general evaluations of people (including oneself), objects, or issues. Attitude is lasting because it persists across time. A momentary feeling does not count as an attitude”*. Likewise, Vaughan & Hogg (1995; cited in Zainal Abidin, *ibid.*) reached the same conclusion stating that *“Attitudes are relatively permanent and persist across times and situations. A momentary feeling in one place is not an attitude”*. Thus, the main difference between an attitude and temporary feelings is the durability and persistence of the former that is harder to change or influence.

However, recent studies replaced the static and stable view associated with attitudes by a more dynamic one, as more studies came to the conclusion that attitudes do change over time (Szabó et al., 2011). In this regard, Schwarz (2007) notes that attitude is context-dependent confirming that *“attitudes may be much less enduring and stable than has traditionally been assumed”* (p. 2). In the same vein, Eirich and Corbett (2007) indicate that as they are formed, attitudes are subjected to *“individual subjective evaluation (involving a rational assessment of costs and benefits), but also influenced by affective and emotional responses and related beliefs”* (p. 2). However, if backed up by well-grounded knowledge and strengthened by unshakable beliefs, attitudes tend to be more change-resistant and last longer (Culbertson, 1968). The same conclusion is drawn by study conducted by Chaiklin (2011) who stresses that people’s attitudes durability are directly linked to the strength of their beliefs.

2.3.2 Attitude Structure

Existing only in the mind makes attitude an unobservable construct that manifests itself through other discernible realms such as actions and reactions people make towards the attitude object in question (Eagly and Chaiken, 1993; MacCorquodale and Meehl, 1948). In order to study attitude, researchers founded different models premised upon their understanding of what constitutes attitude in their respective eras. Attitude was first thought to be a one-dimensional construct that solely consists of an affective component (Thurstone, 1931, Cited in Chaiklin, 2011) or a cognitive component (Fishbein & Ajzen, 1975, cited in Cakir & Solak, 2014). Then, both affective and cognitive constituents were merged to form two-component framework (Crites et al., 1994; Trafimow & Sheeran, 1998). Finally, recent research in the field came to a conclusion that attitude comprises three components, namely cognitive, affective, and behavioural (Ajzen, 2005), which are closely interrelated. In line with this claim, Lieke et al. (2011, p. 159) note that *“Attitude is not a single unitary concept, but a construct consisting of*

multiple subcomponents and attributes". Similarly, Vaughan & Gardner (1980, p. 267) break down attitude into different constructs when they refer to it as *"the sum total of a man's instincts and feelings, prejudice or bias, preconceived notions, fears, threats, and convictions about any specified topic"*. The following figure suggested by Baron & Byrne (1984) clearly illustrate the modern perception of attitude structure.

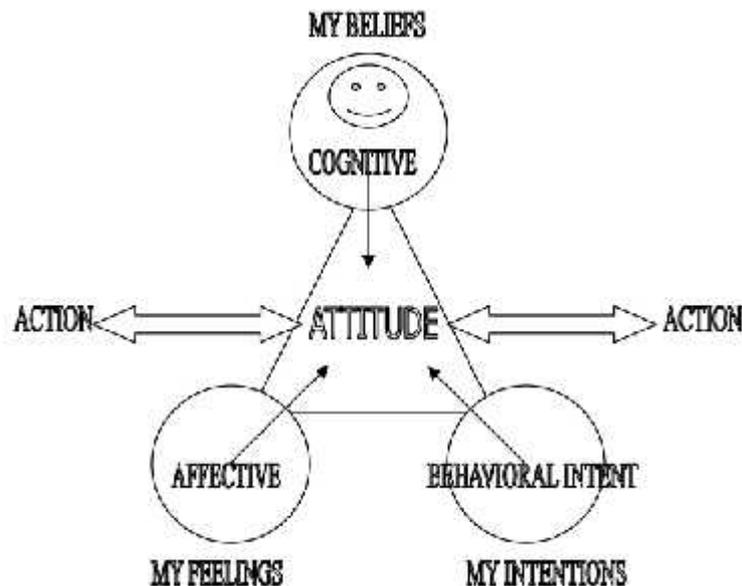


Figure 2.3.1: The Tripartite Attitude Model (Baron & Byrne, 1984; cited in Hassad, 2007, p. 29)

To get a more insightful understanding of the tripartite model, one must clarify how each component (cognitive, affective, and behavioural) is related to attitude. Cognitive component of attitude comprises evaluative beliefs, thoughts, and factual knowledge that an individual holds towards the attitude object (Soleimani & Hanafi, 2013; Lieke et al., 2011). Affective component entails individuals' feelings, emotions, and moods in relation to the attitude object (ibid.). Finally, behavioural component consists of behaviours and actions in which an individual engages when dealing with attitude object (ibid.). Though the different component are separately represented, they are not mutually exclusive (Ajzen, 2001; Dickerson, 1993). The fact that is confirmed by Piaget (cited in Hassad, 2007, p. 43) who stresses that *"at no level, at no state, even in the adult, can we find a behaviour or a state which is purely cognitive without affect nor a purely affective state without a cognitive element involved"*. The same stance is taken by Oscamp (1977, cited in Tahaineh & Daana, 2013, p. 165) who maintains that *"theorists who insist on distinguishing them [attitude components] should bear the burden of providing that the distinction is worthwhile"*. Attitude components are closely interrelated and mutually affect

one another, thus it is not an easy task to determine whether a certain behaviour or an action is driven by cognitive, affective, or behavioural domain of attitude.

Other studies (Mcleod, 1991) moderately supported the three constituents' interrelationship claim suggesting that the connection between the different components is hierarchical in strength. This is in line with the argument put forward by Verplanken et al. (1998, p.32), who claim that "*evaluations of emotions and feelings that are associated with an attitude object are more accessible in memory [requiring a shorter response time] than evaluations of thoughts about the object*". This claim might be referred to the fact that cognitive component is more complex compared to the affective and behavioural ones, as affect and behaviour-based attitudes are expressed with more confidence than cognition-based attitude (Hassad, 2007; Edwards & von Hippel, 1995). Additionally, out of all the three components, belief-based attitude seems to be the most controversial and debatable constituent. It is widely agreed that beliefs held by an individual, more than any other single element, can affect his/her cognitive attitudes either positively or negatively, as it is claimed by Gardner (1985, cited in Al-Tamimi & Shuib, 2009) who points out that "*Attitude is ... linked to a person's values and beliefs and promotes or discourages the choices made in all realms of activity, whether academic or informal*" (p. 30). Nevertheless, other scholars including Thompson (1992) argue that concepts, and not mere beliefs, shape our attitudes. Referring to them as "*a general mental structure, encompassing beliefs, meanings, propositions, rules, mental images, preferences, and the like*" (ibid., p. 130). Hassad (2007, p. 39) asserts that concepts are "*more meaningful and comprehensive representation of the set of perceptual positions*" upon which attitudes may be based and affected either positively or negatively.

2.3.3 Attitude Formation

Attitude is formed through learning, modelling others, or as a result of experiences that individuals go through (Pickens, 2005). This formation process is initiated by a need, which "*may arise within the individual or be triggered by a relevant cue in the environment.*" (John, 1980., p. 26). Recent conceptualization of attitude construction suggests that attitudes are formed in multiple ways, which include cognitive, affective, and behavioural processes (Fazio & Olson, 2003).

- a) **Cognitive process:** when an individual evaluates an attitude object on the basis of a belief or factual knowledge that "*the attitude object possesses (un)desirable attributes, or that the attitude object will bring about (un)desired outcomes*" (Fazio & Olson, 2003., p.

141). Fishbein and Ajzen's (1975, cited in Russel & Olson, 2003) expectancy-value model is the best known cognitive model in this regard as they argue that “*an attitude toward a given object is the sum of the expected value of the attributes of the object*” (p. 141). In this model, an individual’s attitude is based on evaluation of attribute(s) that an attitude object is believed to possess.

- b) **Affective process:** attitude is formed as an emotional reaction towards an attitude object (Fazio & Olson, 2003). One can be said to have affective attitude if his/her reaction towards an attitude object is based on “*positive or negative feelings ... evoked when considering the attitude object*” (ibid., p. 141). Social psychologists identified three ways in which affect based attitude is formed, namely operant conditioning, classical conditioning, and mere exposure (ibid.).
- c) **Behavioural process:** in this type of attitude formation no clear feelings nor beliefs are expressed towards attitude object, yet the individual base his/her attitudes on past experiences and occasions where s/he reacted towards an attitude object either negatively or positively and repeats it (Allport, 1935, cited in Al-zaidiyeen & Mei, 2010). The case in point is the experiment carried out by Bandler et al. (1968, cited in Fazio, R. H., & Olson, 2007) where participants were exposed to equally intense shocks yet they all reported that the pain they felt increased when they were told that intensity of shocks was increasing as well.

Additionally, Pickens (2005) notes that attitude is not only formed through sheer experiences, but it is also shaped by individual’s temperament, which steers it one way or another. Attitudes are not only formed through experience but they also affect individuals’ experiences and even behaviours playing a prominent role in determining an individual’s personality (Zainal Abidin et al., 2011). Being formed through one process does not exclude the involvement of the other two, which are always present in one way or another. Therefore, many scholars (Zanna & Rempel, 1988, cited in Johnson et al., 2005; Edwards, 1990) emphasize the importance of understanding the complex structural relationship between cognitive, affective and behavioural-based formation processes and the way they affect attitude and behaviour.

2.3.4 Attitude Functions

In compliance with claim suggesting that attitude is not a static construct but rather a dynamic state of mind that gets adapted in response to the environment in which the individual

find him/herself, attitude function theory implies that attitudes are “*formed, maintained, and changed in order to satisfy personal needs, and achieve psychological benefits*” (Hassad, 2007, p. 25). Smith et al. (1956, cited in Kartz, 1960) classified attitude reasons in a taxonomy, which was later on expanded by Kartz (1960), to help better understand motivational underpinnings of attitude, clarify attitude-behaviour relationship, and facilitate attitude change process (ibid.). Katz (1960) presumes that any given attitude serves one or more of the following functions

- a) **Utilitarian (Adjustment):** this function implies that attitudes are in place based on self-interest (Hassad, 2007), as it was suggested by Fazio & Olson (2003, p. 145) who explain that it is “*premised on the behaviorist principle of seeking rewards and avoiding punishment in one’s environment*”. Individuals resort to a certain attitude that helps them attain personal gains, achieve positive outcome, and avoid negative consequences (Hassad, 2007), in other words maximize pleasure and avoid punishment (Green and Gerken, 1989).
- b) **Ego-defensive:** it was also referred to by Smith et al. (1956, cited in Kartz, 1960) as “**externalization**”. This function suggests that attitude is used as a “*psychoanalytic defense mechanisms*” (Fazio & Olson, 2003, p. 145) when it is “*motivated by the need to protect people from internal insecurities or external threats*” (Hassad, 2007, p. 25). Under this function, “*individuals would embrace the attitude object in order to minimize their own self-doubts, and experience a sense of belonging or strength*” (ibid.). Hence, attitude here functions as a filter that helps individuals avoid finding themselves in uncomfortable environment or situation.
- c) **Value-expressive:** attitude is a means through which individuals express their stance on a particular issue/matter and make their presence more conspicuous (ibid.), or as it is put Fazio and Olson (2003, p. 145), to “*affirm the self and one’s identity*”. Attitudes motivated by this function are triggered “*to achieve status, recognition, and visibility through membership. Increased self-esteem and social support, or a reduction in anxiety, are common psychological benefits*” (Hassad, 2007, p. 25). So value-expressive function is a means for individuals to gain more visibility in their environment and make their presence felt by the others through claiming more recognition.
- d) **Knowledge (object-appraisal):** attitude is triggered as an adaptation mechanism when an individual finds him/herself in a new or unfamiliar environment (ibid.)

mainly through making the world more predictable by dividing everything into likes and dislikes (Fazio and Olson, 2003, p. 145). Therefore, attitude is motivated by the need to “*gain and organize information in order to better understand, adapt, orient to the environment, and make it more predictable*” (Hassad, 2007, p. 25). Smith et al. (1956, cited in Kartz, 1960) also suggest that this function serves as “*way of ‘sizing up’ objects in one’s environment, saving the time and energy that would be required constantly to compute new attitudes toward objects*”.

Attitudes are in place to serve a need and help individuals adapt to and cope with different situations and environments (Hassad, 2007). The aforementioned functions are not mutually exclusive as they may interact and exist on continuum based on the changing needs of a given individual (ibid.). Furthermore, being overwhelmingly circumstantial, as they are triggered by particular needs, these attitudes may not reflect the true disposition of the individual (ibid.), thus one may adopt a particular attitude as long as the triggering need is in place, and reject it or change it when his/her needs change or s/he moves to a different environment with different requirements. Similarly important, the discussed attitude function taxonomy confirms that attitudes are more dynamic than it was previously believed and can be changed if the individual is put in the right environment and given the proper incentives.

2.3.5 Attitude as Predictor of Behaviour

Attitudes are reactions and generated mechanisms designed to serve particular purposes. Since the early days of attitudinal research, scholars resorted to observation of individuals’ behaviours in order to discern the nature of their attitudes (laPiere, 1934, cited in Pratkanis et al., 1989). This attitude-behaviour relationship was intensively investigated and clarified during the 1970s and 1980s when attitude was asserted as a major predictor of manifested behaviours (Pratkanis et al., 1989). Fishbein and Ajzen (1975, cited in Cakir & Solak, 2014) demonstrated that attitude and behaviour are germane and closely related to each other. Another study by Fazio and Lanna (1981) demonstrated that attitudes based on experiences with an attitude object correlate directly with behaviours when the same attitude object is encountered again. Other studies tried to explore how attitude can be used as a reliable predictor of behaviour, most prominent of which is that of Crano and Messe (1982, cited in Hassad, 2007) who claim that such a prediction can be achieved if number of factors are taken into consideration, including

- a) **Specificity**: also referred to as principle of correspondence or compatibility (Ajzen & Fishbein, 1975). It implies that while measuring an attitude a number of factors

concerning the behaviour must be taken into account and that includes target (who), action (what), context (where), and time (when) (Hassad, 2007).

- b) **Intentionality:** this includes individual's "*intention to adopt the behavior of interest*" (ibid., p. 27).
- c) **Ambiguity:** the more an individual is familiar with the attitude object in terms of prior experience and knowledge the more consistent is the expressed attitude (ibid.).
- d) **Level:** attitudes based on strong and well-founded beliefs are more stable, more consistent, and result in more predictable behaviours (Hassad, 2007; Ajzen, 2001).
- e) **Vested interest:** individual's perception of the impact of the attitude on his/her well-being (Hassad, 2007).
- f) **Self-monitoring:** individual's appreciation of other people's reaction towards the acceptability and appropriateness of the expressed attitude and the ensuing behaviour (ibid.).

Other scholars argued that there are other factors that contribute to attitude-behaviour consistency and the predictability of behaviours and they include accessibility of underlying beliefs, nature of attitude (positive or negative), and the context where attitude object and behaviour take place (Visser and Krosnick; 1998). Other factors such as age, education, gender, and race may also affect strength of attitude as well as its relationship to behaviour (Hassad, 2007). Scholars tend to agree that an attitude that is "*high on each of these subordinate dimensions would probably predict behavior accurately. Thus, knowledge of where people stand on these dimensions may greatly help as it evaluates past efforts and makes plans for the future*" (Culbertson, 1968, p. 84). Accordingly, many studies especially those conducted before integration of innovative practices asserted that attitudes are much more reliable predictor of acceptability and adoption than any other singular factor (Sheth & Stellner, 1979).

2.3.6 The Effect of Attitudes on Teachers

In order to keep up with current speed at which all spheres of life are evolving, institutions are obliged to introduce and adopt innovative practices at different levels. As education is at the heart of nowadays' society, educational institutions are highly liable to such a change. Most common innovative practice that has recently invaded education in general and EFL classroom in particular is the introduction of ICTs. However, as many factors play a decisive role in the success or failure of such a move, a great deal of literature confirms that attitudes of the stakeholders in regards of the innovation are of a paramount importance. The

success of any innovative project in education hinges upon teachers' attitude towards the innovation in question (Sabzian & Gilakjan, 2013; Albirini, 2006). Bullock (2004) refers to teachers' attitude as "*a major enabling/disabling factor*" in the adoption of innovative practices. Several other studies established teachers' attitude as a major predictor for ICT use in educational settings (Abas, 1995; Blankenship, 1998; Sabzian & Gilakjan, 2013).

Teachers' attitude affects their instructional decisions and choices, and consequently their evaluation of the outcome of such moves (Albion & Ertmer, 2002; Sabzian & Gilakjan, 2013). In this regard, Gardner et al. (1993) state that "*the formation of attitudes can provide an understanding of teachers' decisions and perceptions. Attitude may serve to explain decisions educators apply to teaching and how they prepare to teach with technology*". Therefore, if a teacher believes that a piece of CALL is likely to improve and facilitate his/her practice and affect his/her students' learning process positively, that teacher is more likely to accept CALL and adopt it (Saye, 1998). However, if the same technological device is deemed to be of a negative effect on the teacher and/or students, teachers are more likely to manifest resistance (Askar & Umay, 2001). Likewise, teachers' attitudes towards technology are tightly linked to their perception of what constitutes effective teaching. If a teacher believes that teacher effectiveness does not entail the use of technology, this teacher is more likely to have a negative attitude towards technological devices that s/he deems unnecessary and vice versa (Ibid.). Consequently, preliminary exploration of teachers' attitudes before the introduction of any innovative practice is vital for its success (Sabzian & Gilakjan, 2013). Equally important, developing teachers' positive attitude is prominent, not only for the process of ICT introduction but also for reducing the chances of any possible resistance (Watson, 1998, cited in Albirini, 2006).

Watson (1998, cited in Albirini, 2006) warned against the simplistic and mistaken assumption that teachers will accept innovations in their daily practice by simply making technological devices available. He argues that teachers are by no means "*an empty vessel into which this externally defined innovation must be poured*" (ibid., p. 381). Likewise, Huang & Liaw (2005) note that regardless of how sophisticated and powerful technologies are teachers would resist them as long as their attitudes are negative. Having a positive attitude does not only affect teachers' resistance, but it also impacts other aspects such as their likelihood to benefit from training (Sabzian & Gilakjan, 2013). Teachers with a positive attitude towards technological devices feel more comfortable around computers and are more likely to adopt them into their practices (Kersaint et al., 2003). Similarly, positive attitude has been found to be a decisive

factor in encouraging “*less technologically capable teachers to learn the skills necessary for the implementation of technology-based activities in the classroom*” (Albirini, 2006, p. 376). More importantly, teachers’ attitudes do not only affect their personal decisions and experiences with computers but also those of their students (Christensen, 1998). In this regard, Yildirim (2000) explains that “*Teachers teach as they have been taught, and it is unlikely that computer skills will be transferred to students and encouraged by teachers unless the teachers have positive attitudes toward computer use*” (p. 481). Therefore, teachers’ attitudes towards computers do not only affect their own practice but also their students’ attitude and likelihood of technology adoption by potential future teachers.

Attitudes are learned evaluative predispositions of a complex structure as they entail a number of subcomponents. Understanding this construct should help the researcher establish the nature of stakeholders’ attitudes and inform his analysis and suggestions. The strength and durability of an attitude depend on its dominant type, which might be affective, behavioural, or cognitive. Though, it is worth of note that cognitive based attitudes are known to be the strongest and the hardest to change. Determining the nature of the stakeholders’ attitudes towards CALL across the different domains is the first step towards understanding what impedes CALL normalization at the level of our department. Additionally, the type of the attitude is determined by its formation process, which is also dictated by a set of needs and environmental factors. Being highly circumstantial, attitudes are triggered in response to a need as mechanism to help individuals adjust to a particular situation or environment. This circumstantial nature means that attitudes can be changed by offering the right incentives and suitable environmental factors. Therefore, even if our population demonstrates a negative attitude towards ICTs, this can be altered through putting in place a plan that helps them recognize the positive side of CALL and be more receptive to it. Furthermore, attitudes are not only formed by experience, they also affect individuals’ experiences. Thus, they can be used as a reliable predictor of behaviour if a number of factors are closely checked. This function in particular is of a paramount importance to the present research, as it would help the researcher gauge stakeholders’ likelihood to adopt CALL in the future. An attitudinal study is pivotal for any CALL implementation project, as it would facilitate designing the introduction process in a way that accommodates our population preferences and limits the chances for change resistance.

2.4.1 Process of Change and Change Resistance

As technology has imposed itself as a key factor present across all different domains of human life, the advent of its rather innovative tools to classrooms in general and EFL classroom in particular was inevitable. However, the introduction of technology is a progressive process that builds up through a set of stages. In his Innovation Decision Process theory, Rogers (1995) posits that innovation diffusion process goes through five stages, namely Knowledge, Persuasion, Decision, Implementation, and Confirmation. He explains that

“... the innovation-decision process is the process through which an individual (or other decision-making entity) passes (1) from first knowledge of an innovation, (2) to forming an attitude toward the innovation, (3) to a decision to adopt or reject, (4) to implementation of the new idea, and (5) to confirmation of this decision.”

(ibid., p. 161)

Still, the process of technology incorporation is not as easy and linear as it seems in Rogers Innovation Decision Process, thus two thirds of institutional innovative change efforts fail (Maurer; 1996). These failures can be referred to a number of factors, most prominent of which is change resistance.

Change resistance is a common term widely used among project managers, trainers, and instructional designers (West, 1994). It is used to “*describe the unwillingness of employees to embrace a particular idea, concept, curriculum, technology, or coursework*”. Brower and Abolafia (1995) refer to change resistance as a particular kind of action or inaction, whereas Ashforth and Mael (1998, cited in Chuang, 2000) see it as intentional acts of commission (defiance) or omission. Meanwhile, Shapiro et al. (1995) maintain that change resistance is just a way through which individuals show their willingness to deceive authorities and challenge the imposing entity. Though it represents a nightmare for any project manager and aborts many innovative movements in their early stages, change resistance is a natural human trait and an “*inherent capacity of a living being to resist untoward circumstances*” (Mish, 2003, p. 1003) including “*new technology innovation, new policies, and new organizational structure*” (Siegel, 2008, p. 57). Resistance differs in nature from one individual to another, as it can be “*overt or covert, conscious or unconscious, active or passive*” (Rogers, 1995, p. 46), and it also vary in terms of the intensity of one’s reaction.

Change resistance is simply inevitable and the best way to deal with it, is to anticipate it and be prepared for it (Fine, 1986). In a research conducted by Fine (ibid.), he concludes that

“... human beings tend to resist change, even when change represents growth and development ... [and will lead to] greater efficiency and productivity. [Since] changes in an organization affect the individuals within that organization and individuals ... have the power to facilitate or thwart the implementation of an innovation”

(ibid., p. 84)

So besides being a reaction to an externally imposed change, change resistance may also be interpreted as a way to make one's presence felt. Out of all organizations, educational institutions are the most susceptible to change resistance as *“Teachers have been shown to be conservative as a group. They tend to rely on traditional teaching methods and ‘reflexively resist’ curricular and instructional innovation”* (Ponticell, 2003, p. 15). Despite their favourable attitudes and their beliefs that technology may help improve their practice and facilitate accomplishment of personal and professional objectives, teachers abstain from incorporating ICT because of lack of training and relevant knowledge (Lawless & Pellegrino, 2007), low self-efficacy (Mueller et al., 2008), and lack or absence of appropriate materials and assistance.

Managers of innovative projects must allow some resistance as even in successful innovation fusion projects, individuals need time to grasp the change, adjust to it, and eventually accept it. The reasons why people resist change are numerous and multifaceted as they range from the fear of the unknown and status quo shift to the loss of status and benefits (all the reasons are discussed in detail in a later section). Change resistance manifests itself in a number of ways, yet sometimes it *“goes beyond a healthy unease for the unknown”* (Baker, 1989, p.54) to include some rather destructive practices such as task avoidance or postponement, resignation, underproduction (meeting only the minimum expectations of one's work), increased absenteeism, hostility (stated or unstated), increased employee impatience, frustration, and sabotage (Feldman, 1972, cited in ibid.). Therefore, understanding why academic community resists innovative practices and addressing the causes effectively is a sine qua non condition for CALL normalization to take place.

2.4.2 Reasons for which People Welcome Change

While some people resist change and oppose it, others simply embrace it and integrate it into their daily practice. Whether individuals fall in one category or the other is subjected to

a number of factors. These factors have been investigated by many scholars resulting in a number of widely accepted theories. The first one is Davis' (1989) Technology Acceptance Model (TAM) in which he explains that individuals' attitude towards technology are mainly influenced by two variables, perceived usefulness and perceived ease of use.

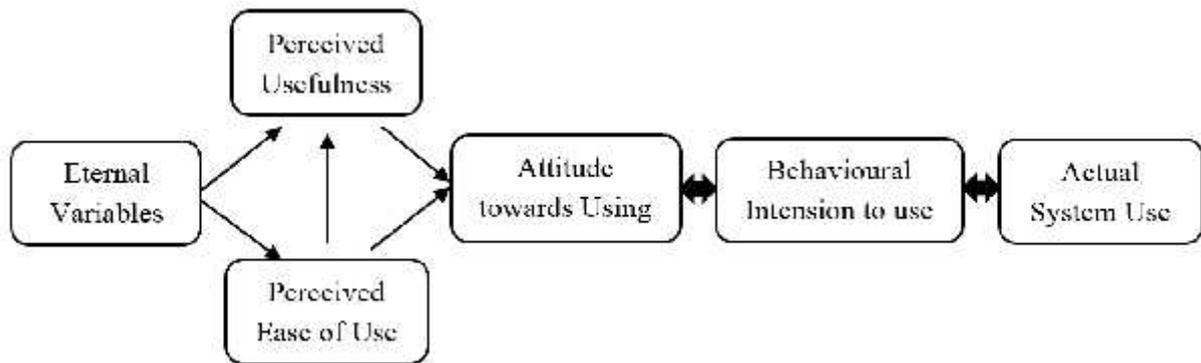


Figure 2.4.1: Technology Acceptance Model (TAM) developed by Davis (1989).

According to Davis (1989), perceived usefulness is *“the prospective user’s subjective probability that using a specific application system will increase his or her job performance”*, whereas perceived ease of use is the *“degree to which the prospective user expects the target system to be free of effort”* (Babi , 2012, p. 5). In his TAM, Davis argues that individuals would welcome any innovative practice as long as it is believed to have some added value and it does not require them to make an extra effort to use the innovation or cope with the new situation. The model was later on updated when Venkatesh and Davis (2000) cooperated and came up with TAM2, which witnessed the inclusion of other variables namely *“processes of cognitive influence: job relevance, output quality and result demonstrability, and the processes of social influence: subjective norm, voluntariness and image, which influence the perceived usefulness”* (Babi , 2012, p. 6).

Unified Theory of Acceptance and Use of Technology (UTAUT) is another widely accepted model in the field of CALL. UTAUT, which was developed by Venkatesh et al. (2003), implies that users' technology acceptance is influenced by four main factors including

“performance expectancy, which describes how much users believe the technology will aid them in their work; effort expectancy, or the perceived ease of using the technology; social influence, which describes subjective norms relating to technology use within the social environment; and facilitating conditions, or the structural features of the environment, such as training, support, and access to technology”

(Blackwell et al., 2013, p. 311)

All these factors combined interact with other variables that serve as moderators that influence user's likelihood to accept CALL or reject it. The variables differ from one individual to another and they include age, gender, experience, and voluntariness of use (Babi , 2012). Previous research conducted by other scholars (Ashford & Mael, 1998, cited in Chuang, 2000) support this claim, as all of them conclude that innovation acceptance is closely related to individuals' expectations of the gain and benefits they will attain from the change. Accordingly, reasons for welcoming change have been intensively investigated and a number of them are featured in the following list.

- **Personal gain:** this is an umbrella term that includes a wide array of benefits ranging from simply more recognition and acknowledgement in work place to increased income. In other words, people will embrace any change that results in direct personal benefit (Chuang, 2000).
- **More income:** regarded as one of the strongest incentives, salary increase, more benefits, profit-sharing program, or more overtime usually result in a smoother shift (ibid.).
- **More authority:** this includes promotion to a higher position or allowance of more authority and decision making possibility (Chuang, 2000).
- **More status/prestige:** this includes “*new title, a new office, or a special assignment that carries with it status and prestige*” (ibid., p. 4).
- **More responsibility:** this entails “*a job change that provides new responsibility, or a new boss who assigned more responsibility than the previous one did*” (ibid., p. 4).
- **Better working conditions:** it covers a number of aspects including less working hours, more suitable schedule, shorter commuting distance, and any working conditions that make the job easier and less demanding (ibid.).
- **Increased personal satisfaction:** this encompasses feeling of self-fulfilment and achievement that result from employment of personal skills and abilities that set individuals different and help carry out tasks more efficiently (ibid.).

- **Better personal contacts:** this includes individuals “*being moved to a place with greater opportunity for contact with and visibility to influential people*” (ibid., p. 4), hence more opportunities for promotion.
- **A new challenge:** it encompasses situations where individuals are assigned new responsibilities that allow them to carry out higher risk tasks that break the routine and impose new challenges (ibid.).
- **Less time and effort:** this includes reduction of work-time load and physical efforts and decreasing routinely or laborious low-skill tasks (ibid.).
- **Respect for the source:** change is much more likely to be welcomed if it is initiated or introduced by an individual or an entity that is recognized for its effectiveness and/or credibility (ibid.).
- **Effective communication:** this encompasses the way a new change is introduced and communicated to the staff (ibid.).

Be it for tangible benefits such as money, visibility, improved working conditions, authority, and responsibility or other rather intangible gains in the image of status, recognition, feeling of importance, and security, individuals will react towards change in terms of how this change will affect them and their immediate environment, despite the fact that some of the expectations will never materialize (Chuang, 2000). Additionally, even if the change is expected to help improve the organization as a whole, it will face resistance unless it provides individual gains and advantages to the working staff. Consequently, what can be deduced from the aforementioned variables is that the fate of any innovation introduction plan is in the hands of the individuals upon whom it will be imposed. Therefore, unless these individuals are taken into account throughout the different stages of the implementation process, the plan will be definitely be doomed to failure.

2.4.3 Reasons for which People Resist Change

As we have seen so far, any innovative project can be either accepted or rejected by the population upon which it is imposed depending on a set of variables. The reasons why individuals resist innovative projects have been heavily investigated, yet it is safe to say that people resist change for two main reasons, namely their unwillingness to shift the status quo and their fear of the unknown. Psychologists classify these two reasons under what they

commonly label Habit and Risk construct (Shet, 1981). Shet (ibid.) notes that *“The strength of habit associated with an existing practice or behaviour is hypothesized to be the single most powerful determinant in generating resistance to change”* (p. 275). If not offered sufficient and persuasive incentives and guarantees, individuals would rarely ever venture to voluntarily trade a familiar situation where they feel comfortable for a new one because *“human tendency is to strive for consistency and status quo”* (ibid.). In regards of the relationship between habit and innovation resistance, Shet (ibid.) also asserts that

“... a) The stronger the habit toward an existing practice or behaviour, the greater the resistance to change and the innovations associated with that change. ... [and] b) Those innovations which generate change for the total behavioural stream will be resisted more strongly than other innovations which generate change for a single behavioural act in the stream of selection, acquisition, and usage” (p. 275).

In other words, the strength of change resistance directly correlates with the strength of the threatened habit and/or behaviour, and the extent of the status quo shift that it will trigger. As for the second construct, i.e. Perceived Risk Associated with Innovations, Shet (ibid.) differentiates two types of prepositions governing risk-innovation relationship. a) The higher the risks associated with a given innovative change the more likely individuals will resist them, and b) discontinuous innovative projects are more likely to generate resistance than continuous ones as they entail more uncertainty and unpredictability. However, Shet (1981) adds that even in the absence of any of the aforementioned prepositions of one construct, individuals would resist change because of the other.

Additionally, there are other factors deemed responsible for triggering change resistance. Individuals within a given organization may resist change as a form of exerting influence on the change-imposing person or entity (Yilmaz & Kiliçoglu, 2013). Change resistance can also be the result of losing something valuable, lack of choice or inability to see that the change is worthwhile (ibid.). Sometimes the reason why an innovative change is resisted does not stem from the project itself nor from the people to whom the change is introduced, but it lies in those who are leading the change. As low esteem, negative attitudes, resentment, or low capability associated with innovative change managers or leaders may lead individuals to resist it (Block, 1993, cited in Chuang, 2000). As change resistance reasons is a widely debated topic, a long list have been suggested through a number of studies, including

- **Interference with Need Fulfilment:** change that is deemed to negatively affect individuals' efforts to fulfil their economic, social, and personal needs is much more likely to face resistance. (Yilmaz & Kiliçoglu, 2013).
- **Selective Perception:** people resist change that interferes with their perception of their world and contradicts the way they view things (ibid.).
- **Habit:** as it has been discussed earlier, individuals feel more comfortable in familiar and predictable environments, and any change that threatens changing their status quo is expected to be faced with resistance (ibid.).
- **Inconvenience or Loss of Freedom:** if change restricts individuals' freedom and threatens to make their environment less comfortable, these individuals will resist it (ibid.). Similarly, change that requires more work and tighter and heavier schedule is much more likely to be resisted especially if the extra effort is not met with direct reward or sense of accomplishment (ibid.).
- **Economic Implications:** if change results in reducing or limiting income, rewards, and other benefits, or imposes further expenses (commuting for a longer distance) individuals will resist it (ibid.).
- **Fear of the Unknown:** if an innovative change is introduced without adequately informing individuals in question about their new roles, what it is expected from them, and how the situation will change, these individuals will manifest resistance (Yilmaz & Kiliçoglu, 2013).
- **Threats to Power or Influence:** change that results in altering powers, relocation of decision making authorities, limiting authorities, loss of titles, and/or reduction of responsibility to menial tasks will generate a sense of a loss of status and recognition among the affected individuals who end up resisting it (ibid.).
- **Knowledge and Skill Obsolescence:** individuals resist change that makes them irrelevant, limits their influence, and diminishes their skills and abilities or the role they play within an organization (ibid.). Likewise, individuals who think that they do not have enough skills to cope up with the change are more likely to resist (Baker, 1989). In fact, Sagie et al. (1985) claim that employees with long experience in particular job resist change more than those who are less experienced.

- **Organizational Structure:** if a change alters positions, threatens the current hierarchy, and places individuals under managements that prevent them from fulfilling their objectives, individuals are more likely to demonstrate resistance (Yilmaz & Kiliçoglu, 2013).
- **Failure to Commit Sufficient Resources to the Change:** if a change is characterized by poor or lack of resources such as equipment or adequate staff training, individuals involved are likely to grow unsatisfied and demonstrate more resistance (Baker, 1989) as such innovative projects are doomed to failure (Yilmaz & Kiliçoglu, 2013).
- **Failure to Prove Change is Needed:** individuals will resist change if they think that there is nothing wrong with the way things are going and change is not needed or will not be of any additional value (Baker, 1989; Chuang, 2000).
- **More Harm than Good:** lower rank employees will resist change that might be beneficial to the organization as a whole, but it affects them or their personal interest negatively (Chuang, 2000).
- **Poor Communication:** lack of appropriate means of communication as well as justification and clarification of the innovative change, its objectives, and process of implementation open the doors for speculations and generate a sense of resentment and marginalization among individuals and lead them to demonstrate a stronger resistance. (Chuang, 2000). Individuals may also show more resistance if they are informed or found about a certain change indirectly or from a second-hand source (ibid.).
- **Negative Attitude:** negative attitudes towards the change, the imposing entity, the leading individuals, and/or its ultimate objectives result in strong resistance (ibid.).
- **Perception of Criticism:** if a change is presented in a way that directly criticizes people who were involved in previous projects and diminishes their accomplishments, these individuals will react by showing resistance (ibid.).
- **Bad Timing:** choosing the appropriate time to introduce a change is vital, because individuals will resist any change that is imposed while they are dealing with major problems or when the shift is difficult to make (ibid.).

- **Employees Participation:** being marginalized while an innovative project is implemented, makes individuals feel neglected, kept in the dark, unneeded, and unappreciated resulting in increasing their fear of the unknown and dissatisfaction (Baker, 1989).
- **Fear of Change Due to Social Consequence:** change often results in changing personnel and bringing new people together, and if an individual is used to work effectively and comfortably with a particular superior or staff s/he might resist any change that requires him/her to work with individuals s/he is not familiar with (ibid.). Similarly, individuals do not welcome change moves them away from friends and important contacts as this will reduce their visibility within their organization (Yilmaz & Kiliçoglu, 2013).

Human beings are very reactive towards anything that happens around them or affects their environment, thus change resistance is almost a second nature for humans, as throughout the centuries this mechanism helped them better evaluate things and be in control of their environment. Therefore, rather than suppressing resistance and trying to directly eliminate it, managers and change leaders had better understand and anticipate the underlying reasons that trigger resistance and deal with them properly. Such a move requires preliminary studies that investigate environment in which the innovation will be implemented and extending communication channels with individuals upon whom the change will be imposed to help prepare them for the process and take their stance on the aspects that might worry them.

2.4.4 Overcoming Change Resistance

Be it a change that concerns technology, hierarchy, or organizational structure, it will always affect individuals who are subject to it (Schein, 1980, cited in Davis, 1989). Until institutions understand how the imposed change affects their employees, this change is doomed to failure (Kavanagh & Ashkanasy, 2006; Devos et al., 2007). Change management is based on understanding psychological and behavioural reactions associated with status quo shift and individuals' frustration, fear, doubt, and disorientation when faced with a new environment (Armenakis & Bedian, 1999; Martin, et al., 2005). Individuals' defensive and negative reactions must be met by a contingency approach that takes into account all the situational factors and variables associated with the change in question as well as the population upon which it is

imposed (Yilmaz & Kiliçoglu, 2013). Therefore, Kotter & Schlesinger (1979) confirm that any innovative change must take the following actions into consideration.

- **Education and Communication:** explanation and clarification of the nature of change, the principles upon which its premised, its ultimate objectives, the way it will affect individuals within the organization, and the different stages of implementation process will clear up uncertainties and doubts, answer questions, and help individuals predicts what are they are going to face and better prepare for it (ibid.).
- **Participation and Involvement:** involving individuals in the different stages of change process will make them feel appreciated and needed, and consequently develop a sense of ownership over the change in question (ibid.). This sense of ownership will make project's success the personal responsibility of the involved individuals and not only project leaders (ibid.).
- **Facilitation and Support:** change managers must take employees' problems, complaints and frustrations into consideration and find ways to make work environment more pleasant and enjoyable to smooth change process and ensure its success (ibid.).
- **Negotiation and Agreement:** exploring the perspectives of individuals directly affected by change, finding compromises, and offering enough incentives, proper compensations, and benefits are effective strategies to absorb their fear and frustration over giving up something of a value to them or assuming more burdens and responsibilities (Kotter & Schlesinger, 1979).
- **Manipulation and Co-optation:** though it does not seem a straight forward strategy, manipulating influential and highly recognized individuals in favour of a change results in a positive effect on the rest of employees and reduces resistance (ibid.).
- **Explicit and Implicit Coercion:** more of drastic measure than a strategy that is used by agents with a considerable power and authority in crisis situations and when time constraints do not allow the implementation of other alternatives (ibid.). However, it should be kept in mind that compelling individuals to accept change reluctantly results in frustration, dissatisfaction, revenge, sabotage and low performance (ibid.).

Baker (1989) maintains that employees who receive enough information about the change and get their questions answered, will receive change better than those who are kept in

the dark. Additionally, individuals must be made aware of new roles and positions they will assume under the new circumstances (ibid.). Likewise, offering the needed counselling and adequate training also increase employees' sense of security and assurance (ibid.). Besides, the first months of change process are the most critical and stressful ones for individuals, therefore directors must be careful about the way they treat their employees during the first stages (ibid.). Moreover, clarification of benefits and reasons for change as well as gaps and drawbacks in the old system helps smoothen transition process and limits resistance (ibid.). To sum up, dealing successfully with change lies in carefully planning implementation process, pinpointing causes of resistance, and choosing the right strategy to deal them (Kotter & Schlesinger, 1979).

Considered as second nature for humans, change resistance is inevitable. This disinclination of individuals to accept or reject externally imposed ideas, policies, new technologies, and organizational structures, causes the failure of around two thirds of innovative projects. People usually welcome change if it does not require huge efforts to cope with the new situation, if it brings to the table an added value, if it conforms to one's social norms and does not affect his/her image negatively, and/or if enough support is provided throughout change process. However, any failure to meet those requirements will doom the whole innovation integration project to failure. In addition to a number of personal, affective, professional, financial, and social factors, it is widely agreed that individuals resist change that entails significant shift in status quo, hazy implementation processes that leave people in doubt and uncertainty, changes that targets strong and well-established habits and practices, and discontinuous change processes as they entail a significant amount of uncertainty. Still, there is a number of strategies and techniques used to overcome all the aforementioned hurdles depending the nature of the factor(s) that initiates change resistance. Therefore, project managers who aspire to introduce an innovation like CALL into an educational institution must be aware of all these factors so as to devise an effective plan that takes into account all issues that might thwart the implementation process and generate change resistance among the population upon which the change is to be imposed.

2.5 CALL Normalization

Almost everything that we use in our daily lives from tablespoons and hammers to televisions and mobile phones were once considered new inventions when they were first introduced to the masses. However, people now use these once innovative inventions regularly without even noticing their presence. This is the result of what is commonly termed “Normalization”. The same thing applies for computers and new technologies that make a big fuss when they are first presented to the general public; however, people (or some of them at least) just accept them as a regular feature of their daily lives after a period of exploration and use. Though technology, mainly manifesting itself in computers, is used in all the activities and tasks we carry out throughout different fields, this 21st century’s dominant feature is still groping its way into the classroom whereas other forms of it simply could not make the breakthrough. This is due to the conservative nature of academic communities, as teachers, students and even administrators’ (or some of them at least) could not accept the idea of using computers and other technologies in classroom for teaching and learning purposes.

The concept “CALL Normalization” is relatively still new in the field of EFL as it was first introduced by Bax in 2000 (Bax, 2003). Normalization is the final stage of CALL integration process and the ultimate goal of any CALL project. It is achieved when

“... computers (probably very different in shape and size from their current manifestations) are used every day by language students and teachers as an integral part of every lesson, like a pen or a book ... without fear or inhibition, and equally without an exaggerated respect for what they can do. They will not be the centre of any lesson, but they will play a part in almost all. They will be completely integrated into all other aspects of classroom life, alongside coursebooks, teachers and notepads. They will go almost unnoticed.”

(ibid., p. 23).

According to Bax’s (ibid.) definition, normalization can only be achieved if CALL is completely accepted as a natural part of everyday EFL classroom without exaggerated fear nor inflated respect. CALL can be said to be normalized when computers and other technological aids are used regularly by teachers and students yet still managing to go unnoticed *“therefore as invisible and natural as whiteboards and pens”* (Chambers & Bax, 2006, p. 466). Similarly, in an EFL classroom where CALL is completely normalized, the main focus is on learning rather

than technology itself, “*when the needs of learners will be carefully analysed first of all, and then the computer used to serve those needs*” (Bax, 2003, p. 23). Furthermore, Chambers and Bax (2006) also add that teachers and students will not “*reap ... full benefits*” of CALL unless it is completely normalized.

Moreover, Bax (2003) maintains that as long as CALL exists as a separate field of study with its own specialists, it cannot be said that CALL has been completely normalized. Thus there is no such a thing such as “*PALL (Pen Assisted Language Learning) or of BALL (Book Assisted Language Learning) because those two technologies are completely integrated into education*” (ibid., p. 23). He claims that for a full state of CALL normalization there must be no CALL practitioners as those “*should be aiming at their own extinction*” (ibid.). What Bax (ibid.) suggests is that we do not have teachers who are specialized in using books and others whose expertise is limited to the use of whiteboards, because these two technologies are viewed as regular features of any classroom, therefore teachers are expected to master their use. Consequently, until instructors regard CALL as an integral everyday tool in their classroom and teachers are inherently expected to master using CALL and employ it regularly, CALL cannot be said to have been fully normalized. In other words, for CALL to be normalized all language teachers should be regarded as CALL practitioners.

As for the stages of CALL normalization, Bax (2003, p. 24-25) suggests a set of probable steps through which this process progresses.

1. *Early Adopters. A few teachers and schools adopt the technology out of curiosity.*
2. *Ignorance/scepticism. However, most people are sceptical, or ignorant of its existence.*
3. *Try once. People try it out but reject it because of early problems. They can't see its value—it doesn't appear to add anything of relative advantage.*
4. *Try again. Someone tells them it really works. They try again. They see it does in fact have relative advantage.*
5. *Fear/awe. More people start to use it, but still there is (a) fear, alternating with (b) exaggerated expectations.*
6. *Normalizing. Gradually it is seen as something normal.*
7. *Normalization. The technology is so integrated into our lives that it becomes invisible—'normalized'.*

As it can be discerned from the stages listed above, the process of normalization is far from being straight forward nor predictable. As scepticism and subjective judgements are constant features that characterize the entire process until the last stage is reached. Yet these are not the only hindrances that CALL normalization process faces.

Chambers & Bax (2006) cluster the issues that any CALL normalization project is expected to encountered under four main categories including **a)** logistics, **b)** stakeholders' conceptions, knowledge, and abilities, **c)** syllabus and software integration, and **d)** training, development, and support. Nevertheless, Bax (2003; 2011) also addresses other issues that he considers major setbacks to any normalization project. He expresses his concern over unrealistic assumptions held by people towards CALL, as instead of focusing on

“... the role which the software could play within the wider classroom context (a small role, but a useful one) their expectation seemed to be that it should either do everything and replace current technologies such as dictionaries and even the teacher, or it was not useful.”

(Bax, 2003, p. 25)

He refers this ‘*all or nothing*’ perception to the “*Sole Agent’ fallacy*” (ibid.), which either places CALL on the pedestal and expects it to replace everything from course books to teachers and do all the tasks on its own, or it will be knocked off its perch and be dismissed as unworthy of consideration (ibid.).

Bax (2011) also addresses another issue highly associated with CALL, which is that of ‘Awe’ and ‘Fear’. He argues that “*Technologies are popularly presented as being either so powerful that they will undoubtedly change every aspect of our practice, or else so evil as to be entirely harmful, with apparently no middle, nuanced or neutral position possible*” (ibid., p. 3). Unlike other already normalized technologies (pens, books, whiteboards, ... etc.), people seem to have a simplistic polarized view towards CALL as they focus either on the positives or the negatives, unable to consider both sides or be mindful of external factors other than CALL that might interfere with the application of technology in language education (ibid.). Therefore, in order for CALL normalization to take place, all factors concerning learning in general, including social and human ones, should be taken into consideration, and not only CALL as a single factor. Those factors can be clustered under the following points

- Learning and development are “*culturally based, not just culturally influenced*” (Mercer & Fisher, 1997, cited in Bax, 2011, p. 7).
- Learning and development are “*social rather than individualized processes*” (ibid.).
- Learning and development are developed “*communicatively*” (ibid.).
- “*Understandings are constructed in culturally formed settings*” (ibid.).
- “*Learning with assistance or instruction is a common and important feature of human mental development*” (ibid.).
- “*The limits of a person’s learning or problem-solving ability can be expanded by providing the right kind of assistance or instruction*” (ibid.).

What Bax (ibid.) is trying to point out is the fact that even in the presence of an effective CALL tool, learning experience still necessitates the presence of a human instructor and the availability of a social environment where learning can take place.

Other factors include “*improvements in the size, design and location of the technology, in other physical aspects of the educational setting, in timetabling*” (Chambers & Bax, 2006, p. 467) as well as “*changes ... in the size, shape and position of the classroom computers ... attitudes, in approach and practice amongst teachers and learners ... fuller integration into administrative procedures and syllabuses*” (Bax, 2003, p. 26). This latter, i.e. syllabus, is regarded by Chambers and Bax (2006) as decisive factor in achieving a complete invisibility of CALL in the classroom, as according to them CALL needs to be integrated into the syllabus “*in such a way that teachers are expected, as often as the facilities allow, to use computers in their teaching*” (Chambers & Bax, 2006, p. 477). The absence of such an expressed expectation of regular use of CALL by teachers will result in nothing but perpetuating the state of avoidance (ibid.). He also suggests that teachers are at the heart of normalization process and therefore they need technical and pedagogical support, opportunities for professional development, more authorable software, and at last but not at least “*computing facilities to be accessible and organized in ways conducive to the easy integration of computer activities with non-computer activities*” (ibid.). As any failure to meet these basic requirements should dishearten teachers and push them back towards traditional methods.

What Bax (2003, 2006, 2011) suggests is that before taking any step towards the adoption of CALL, administrators, teachers, learners, and syllabus designers need to avoid

simplistic views and getting dazzled by the novelty of technology, and instead carefully consider the pros and cons of CALL, external factors that might intervene, and the way CALL can improve language instruction without being a distractive agent. However, most importantly academic communities need to “*adjust ... current practice in each aspect so as to encourage normalization*” (Bax, 2003, p. 23). Only by achieving complete normalization, we will be able to fully link education to technology and make the best use of both. Still, Bax’s vision of a normalized CALL restricts the use of educational technologies to the confines of the traditional brick and mortar classroom, and misses the fact that current technologies enable the expansion of learning environment to include everywhere and anywhere. Denying such a prominent facet of CALL should hamper the normalization process itself, and exclude a number of successful CALL models. Therefore, revisiting the current definition of CALL normalization and replacing the term “classroom” by “learning environment” in addition to substituting the term “computer” by “technology” are necessary to ensure covering all CALL models and tools, and guarantee the sustainability of the definition itself.

2.6 Conclusion

CALL is an umbrella term that encompasses different applications of ICT in language classroom, that range from using an data projector to present learning materials, to blending face-to-face and online methodologies to present the same lesson, to delivering the entire course online. Throughout its history CALL got directly affected by ESL and EFL instruction theories; however, be it a tool or tutor, CALL application can only be limited by the imagination on the part of its user as different technologies have been used successfully to teach different language skills and enrich students' learning experience in ways that are impossible under traditional face-to-face approaches. CALL incorporation might be hampered by a number of external as well as internal factors, however negative attitudes are established by a number of scholars as CALL's most hindering factor. Attitude is a complex construct that needs to be analysed and understood in order to gauge teachers and students' likelihood to accept CALL, discover the reasons that affect their attitudes negatively, and take the needed measures to alter them. Change resistance is another issue that needs to be taken into consideration when introducing CALL, thus understanding how the imposed change would affect the academic community and preparing the ground before introducing educational technologies are major steps towards reaching a full state of CALL normalization. This latter is a state where educational technologies are regularly used by students and teachers as a part of their language classroom without noticing their presence or giving them a special status. A full state of normalization also requires that teachers become CALL practitioners as an integral part of their profession.

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3.1 Introduction

The third chapter provides analyses of the data gathered through questionnaires and interviews. Data analyses are arranged in terms of sections for each sample population category, i.e. teachers' data analysis, students' data analysis, and administrators' data analysis, bearing in mind that each section is divided into a number of subsections depending on the investigated aspects. Each section is followed by an in-depth discussion that attempts to interpret the findings, relate them to what has been discussed earlier in the review of literature, and link them to data gained from other tools and sample populations. Additionally, the chapter is concluded with a section that aims at connecting research findings to answer the research questions upon which the current work is premised. This chapter is an endeavour that aims at sorting out research findings in a way that facilitates addressing some of issues the present study aspires to tackle.

3.2 Teachers' Questionnaire

Teachers' questionnaire consisted of eight sections, all of which designed to investigate different aspects of the present research and help answer the previously listed research questions. These aspects are as follows

- Teachers' background information.
- Computer access.
- ICT training.
- Use of ICT in teaching.
- Teachers' attitude (Affective domain, Cognitive domain, Behavioural domain).
- Likelihood of adopting ICT by teachers (perceived usefulness, perceived ease of use, ICT compatibility with teachers' practices, computer observability).
- Teachers' computer competence.
- Problems impeding CALL normalization.

The type of questions differs from one section to the other according to the nature of information that the researcher aims to investigate. Section one consists of closed-ended questions, section two and section four are mainly made up of multiple choice questions, whereas section three entails open ended questions. Meanwhile section five, six, seven and eight are likert-scale survey tables as they are intended to measure teachers' attitude towards CALL, ICT competence, and opinions.

3.2.1 Section One: Teachers' Background Information

Teachers' sample population consisted of eight male (66.7%) and four female (33.3%) respondents as illustrated in figure 3.1. Respondents' ages ranged between 29 and 46 years old. The first age category (23-29 y.o) comprised one teacher (8.33%), second age category (30-39 y.o) entailed five teachers (41.6%), whereas the remaining six teachers (50%) fell within the third category (40-49 y.o). Concerning the working experience of our respondents (table 3.1), three of them (25%) fell within the first working experience category (1-5 years), whereas second category (6-10 years) encompassed 58.33% of respondents, meanwhile only two respondents (16.7%) stated that they had more than 15 years of teaching experience.

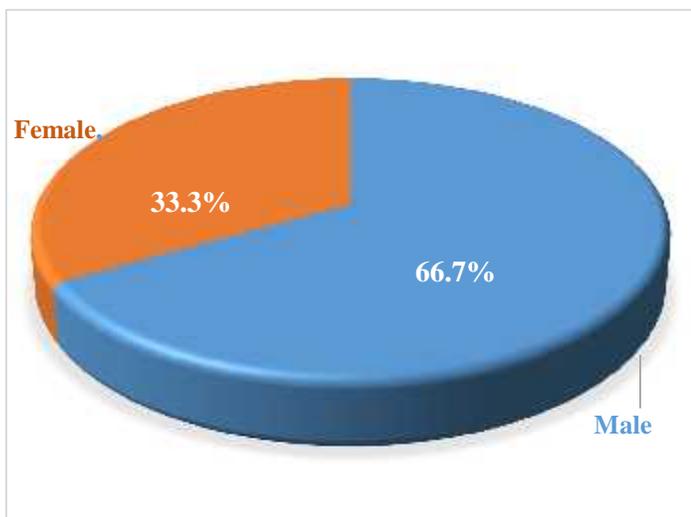


Figure 3.1: Respondents' Gender.

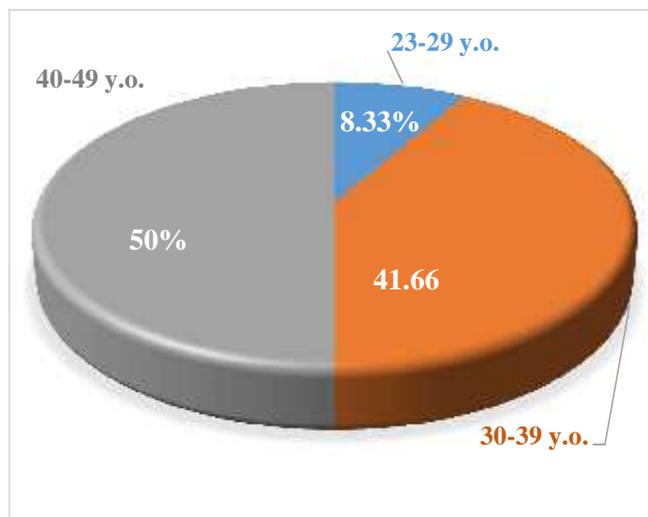


Figure 3.2: Respondents' Ages.

As all our informants were active faculty members at the time of taking part in the survey, it is worth pointing out that ten (83.3%) of them held a Ph.D. degree whereas only two teachers (16.7%) held an M.A. degree. In addition, eight teachers (66.6%) noted that they teach technical subjects (linguistics, oral expression, and written expression) and four respondents (33.3%) stated that they

specialized in civilization, whereas literature and sociolinguistics subjects were not indicated by any respondent.

	Category	Frequency	Percent %
Teaching experience	1-5 years	3	25
	6-10 years	7	58.33
	15+ years	2	16.7
	Total	12	100.0

Table 3.1: Teachers' Background Information.

3.2.2 Section Two: Computer Access

Respondents were asked to rate their access to potential computer devices in a number of contexts, namely home, university (laboratory, library, ... etc.), and other places (cybercafés, public institutions, ... etc.). Computer access was represented by a mean score on a 5-points likert-scale ranging from 1 (never) to 5 (daily). As it can be discerned from table 3.2, home represented our respondents most frequent place of computer access as all of them (100%) stated that they used computers at their homes in a daily manner, the fact that resulted in a perfect mean score of 5 points with standard deviation of 0.00. Cybercafés and other public institutions were our informants second frequent answer, yet with a mean score below the average (2.00) as the majority of our respondents opted for rarely (66.7%) as an answer (SD = 0.632). This can result from a number of reasons, mainly bad services and inappropriateness of facilities. With a mean score of only 1.92, University proved to be the least used place for accessing computers, as all the respondents answers (SD = 0.669) ranged between never (25%), rarely (58.33%) and once a week (16.66%) and that is due to the lack of computer facilities at the level of English department.

At home	Scale	Frequency	Percent %	Mean	SD
	daily	12	100.0	5.00	0.000
University lab or library	Scale	Frequency	Percent %	Mean	SD
	never	3	25	1.92	0.669
	rarely	7	58.33		
	once a week	2	16.66		
	Total	12	100.0		
Other places	Scale	Frequency	Percent %	Mean	SD
	never	2	16.7	2.00	0.632
	rarely	8	66.7		
	once a week	2	16.7		
	Total	12	100.0		

SD: Standard Deviation

Table 3.2: Teachers' Computer Access.

3.2.3 Section Three: ICT training

Figure 3.3 illustrates informants' responses to the seventh question where they were asked whether they had received training on how to use ICT in EFL teaching. 41.66 % of respondents stated that they received formal training whereas two teachers noted that they learned how to use ICT in EFL teaching on their own. Meanwhile, the remaining 41.66 % of informants stated that they did not receive any training.

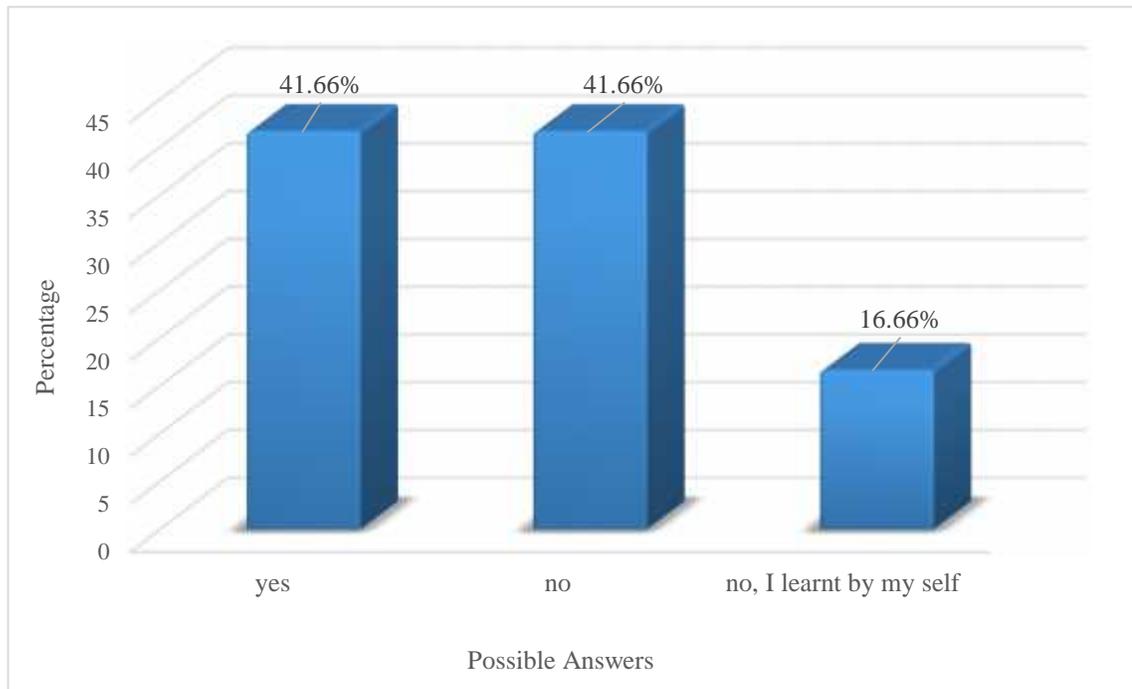


Figure 3.3: Training on How to Use CALL.

As for training type (table 3.2), three teachers noted that they received a basic training on how to operate a computer, in addition to the 41.66% of respondents whose training covered the use of computer applications (word processing, Excel, PowerPoint, ... etc.). One informant stated that he received a rather advanced type of training that entails computer integration in classroom. The answers of the remaining 25 % who opted for other as an answer ranged between training on PowerPoint presentation (16.7%) which can be included under computer applications, and the use of rather advanced applications such as Moodle platform and asynchronous CMC tools. Whereas for the institution of training (table 3.2), four respondents (40%) noted that they are self-taught, two respondents (20%) stated that they have received training from the university, one teacher (10%) noted that s/he went to specialized school whereas the remaining teachers opted for “other” as an answer yet without clarifying what type of institutions they attended.

	Possible answers	Responses	
		N	Percent
Training institution	Self-taught	4	40.0%
	College or university	2	20.0%
	A specialized school	1	10.0%
	Other	3	30.0%
	Total	10	100.0%
	Possible answers	Responses	
		N	Percent
Training type	Basic computer literacy (on/off operations, how to run programs...)	3	25%
	Computer applications (word processing, Excel, spreadsheets...)	5	41.66%
	Computer integration (how to use computers in classrooms)	1	8.33%
	Other	3	25%
	Total	12	100.0%

Table 3.2 Training Type and Institution.

3.2.4 Section Four: Use of ICT in Teaching

Figure 3.4 illustrates the results of question number 10 where teachers were asked whether they had used ICT in their teaching practice. Eight teachers (66.7%) stated that they had used ICT for teaching purposes whereas four teachers (33.3) responded that they had not.

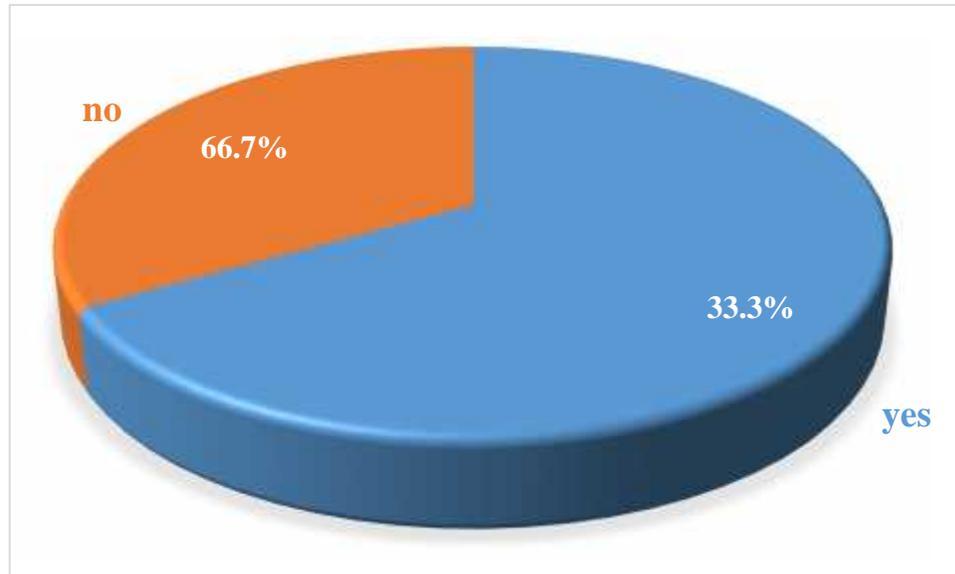


Figure 3.4 Using ICTs for Educational Purposes.

As for ICT devices and software they have used, respondents' answers included laptops, speakers, and data projectors for hardware, and online open source platforms, emails, social networks, PowerPoint, word-processing, and other computer applications for software. Similarly, informants who answered by "yes" were asked about the purpose for which they used ICT (table 3.3), eight of them (100%) stated that they used it for material presentation whereas one teacher added that s/he used ICT for practice. As for the place where ICT was employed all the eight participants (100%) stated that they used ICT in their classrooms. Furthermore, one informant (12.5%) noted that s/he had the chance to use ICT in a language laboratory. Meanwhile, no informant stated that s/he used the internet. Besides, all informants who stated that they used ICT, also noted that it helped their students in many ways including motivation and keeping students focused. Likewise, another teacher noted that the use of ICT helped free more time for active learning rather than spending time on lecturing and passive teaching. Another benefit of ICT listed by our informants is the diversification of teaching especially for visual learners who found pictures, charts, and other visual aids very informative and intriguing.

	Responses			Cases			
		N	Percent	Valid		Missing	
Purpose for using ICT in teaching	Material presentation	8	100.0%	N	Percent	N	Percent
	Practice	1	12.5%	8	66.6	4	33.3
	Assessment	0	0.0%				
	Total	9	112.5%				
	Responses			Cases			
		N	Percent	Valid		Missing	
Place of CALL use	In computer laboratory	1	12.5%	N	Percent	N	Percent
	In classroom	8	100.0%	8	66.7%	4	33.3%
	Via internet	0	0.0%				
	Total	9	112.5%				
Effectiveness of CALL	Scale	Frequency	Percent	Cases			
	Yes	8	100.0%	Valid		Valid	
	No	0	0.0%	N	Percent	N	Percent
	Total	8	100.0%	8	66.7%	4	33.3%

Table 3.3: Use of ICT in Teaching.

Question 15 was directed to teachers who stated earlier that they had not used ICT in their classrooms, as the aim of this question was to explore the reasons that prevented them from doing so. Though respondents had seven different reasons to choose from, they opted for two main ones. The first one is their belief that ICT would not help make teaching more effective. Whereas the second one is the lack of time for teaching material preparation. Moreover, one of the informants commented that s/he is too used to the traditional way of teaching or as s/he called it “chalk and talk”. Meanwhile, the sixteenth question is an open invitation for all the respondents to highlight what is needed to increase their use of ICT. Pedagogical support (80%) and increased training

(60%) claimed the top of the list followed by increased access to ICT facilities (50%) and technical support, which was chosen by 40% of respondents. Whereas, surprisingly enough, only three teachers (30%) has opted for the need for more advanced facilities. Meanwhile, one teacher opted for other as an answer without stating what is needed.

	Possible answers	Responses		Cases			
		N	Percent	Valid		Missing	
The reasons for not using ICT	I don't think ICT would teach my students more effectively	2	50.0%	N	Percent	N	Percent
	I don't have enough time for preparing teaching material	2	50.0%	4	33.3%	8	66.7%
	Other	2	50.0%				
	Total	6	150.0%				
	Responses			Cases			
	Possible answers	N	Percent	Valid		Missing	
Perceived solution	Increased accessibility to ICT facilities	5	50.0%	N	Percent	N	Percent
	Increased training	6	60.0%	10	83.3	2	16.7
	Pedagogical support	8	80.0%				
	Increased technical support	4	40.0%				
	More advanced facilities	3	30.0%				
	Other	1	10.0%				
	Total	27	270.0%				

Table 3.4: Reasons for not Using ICT and Perceived Solutions.

3.2.5 Section Five: Teachers' Attitude

It is worthy of note that in sections 5,6,7,8,9,10,11 and 13, a mix of negatively and positively worded items were used in order to reduce acquiescent response bias (Nunnally, 1967), and responses were obtained on a total five-point Likert-scale. Items were reverse-coded where necessary, so that higher values represent a more favourable disposition toward ICT. Responses were represented by a mean score on a 5-points scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.2.5.1 Affective Domain

Items 1 to 6 aimed at measuring affective domain of teachers' attitude towards computers and ICT in general. The mean score of all items ranged between 4.17 and 4.83 (significantly high) with a standard deviation below 1, which means that responses did not vary much, in fact they were limited to the top two favourable values, except for second and fourth items where some responses included "not sure" at a value of 3. Teachers' positive feelings towards computers are evident as all informants stated that they have no apprehension of computer, they welcome the increasing numbers of computers in their environment, they feel comfortable around computers, and they enjoy using them. Consequently, our respondents' affective attitude towards computers is clearly positive.

Items	N	Min	Max	Mean	SD
1. Computers do not scare me at all	12	3	5	4.33	.816
2. Computers make me feel uncomfortable	12	2	5	4.17	1.169
3. I am glad there are more computers these days	12	4	5	4.83	.408
4. I do not like talking with others about computers	12	2	5	4.17	1.329
5. Using computers is enjoyable	12	4	5	4.83	.408
6. I dislike using computers in teaching	12	3	5	4.17	.983

Table 3.5: Teachers' Affective Domain Attitude towards ICT.

3.2.5.2 Cognitive Domain

Items 7 to 15 illustrated in table 3.6 were intended to explore teachers' cognitive attitude towards ICT. Unlike affective attitude, teachers' cognitive perception of ICT is less consistent as difference between responses reached in some cases a standard deviation of 1.34. All teachers seem to agree that schools would be a better place with the presence of computers ($M = 4.5$), learning about computers is important ($M = 4.67$), computers is something that they will need in the future ($M = 4.67$), and that computers have a positive effect ($M = 4.17$). Similarly, informants' responses to these items were consistent at a standard deviation below 0.9. However, standard deviation for remaining items ranged between 1.033 and 1.602, which means that responses varied significantly between informants as some of them, expressed a strong favourable attitude towards computers (5 points), whereas others had a complete unfavourable response (1 point). A case in point is efficiency of computers in getting information (item 12). Yet negative responses seem to be isolated cases, as the overall mean of all items combined was not affected as it landed at 4.16. Therefore, one can conclude that teachers' cognitive attitude towards computers is a positive one.

Items	N	Min	Max	Mean	SD
7. Computers save time and effort	12	2	5	4.00	1.265
8. Schools would be a better place without computers	12	3	5	4.50	.837
9. Students must use computers in all modules	12	2	5	3.33	1.033
10. Learning about computers is a waste of time	12	3	5	4.67	.816
11. Computers would motivate students to do more study	12	2	5	3.83	1.472
12. Computers are a fast and efficient means of getting information	12	1	5	4.17	1.602
13. I do not think I would ever need a computer in my classroom	12	4	5	4.67	.516
14. Computers can enhance students' learning	12	2	5	4.17	1.329
15. Computers do more harm than good	12	3	5	4.17	.753

Table 3.6: Teachers' Cognitive Domain Attitude towards ICT.

3.2.5.3 Behavioural Domain

As for the behavioural domain of teachers' attitude towards computers, five items (16 to 20) were put in place in order to examine it. Our respondents expressed high favourable intentions in terms of their readiness to learn more about computers (item 19: $M = 4.67$), willingness to use computers in the near future (item 20: $M = 4.83$), in addition to their inclination to be around computers (item 18: $M = 4.50$). However, their responses to item 16 and 17 were less consistent with a standard deviation ranging between 1.225 and 1.378, especially for the seventeenth item where the mean (3.50) was closer to neutral, as some female respondents (16.66%) expressed highly negative intension towards purchasing ICT equipment (1 point). Nevertheless, an overall mean of 4.30 definitely stated it clear that the global behavioural attitude of teachers towards ICT is a positive one.

Items	N	Min	Max	Mean	SD
16. I would rather do things by hand than with a computer	10	2	5	4.00	1.225
17. If I had the money, I would buy a ICT teaching tools and materials	12	1	5	3.50	1.378
18. I would avoid computers as much as possible	12	4	5	4.50	.548
19. I would like to learn more about computers	12	4	5	4.67	.516
20. I have no intention to use computers in the near future	12	4	5	4.83	.408

Table 3.7: Teachers' Behavioural Domain Attitude towards ICT.

3.2.5.4 Perceived Usefulness of ICT

Table 3.8 portrays teachers' responses in regards to their perceptions of computer usefulness in EFL classroom. All respondents agreed that computers would improve education ($M = 4.50$), teaching using computer is more advantageous than traditional teaching ($M = 4.17$), technology can improve language learning ($M = 4.17$), computers would make learning more interesting ($M = 4.33$), and computers are useful for language learning ($M = 4.50$). With consistency in responses, as in most cases standard deviation was below one point, and an overall

mean score of 4.33, it could be concluded that teachers have a positive perception of computers usefulness in educational settings.

Items	N	Min	Max	Mean	SD
21. Computers will improve education	12	3	5	4.50	.837
22. Teaching with computers offers real advantages over traditional methods of instruction	12	3	5	4.17	.983
23. Computer technology cannot improve the quality of students' learning	12	2	5	4.17	1.169
24. Using computer technology in the classroom would make the subject matter more interesting	12	3	5	4.33	.816
25. Computers are not useful for language learning	12	3	5	4.50	.837

Table 3.8: Teachers' Perceived Usefulness of ICT.

3.2.5.5 Perceived Ease of Use

Table 3.9 that consists of items 31 to 34 was intended to investigate teachers' perceived ease of use of computers. With the highest value of 5 points being the mode for three items out of four, teachers' perceptions were clearly positive. Teachers seemed to think that they were able to learn how to use computers in their teaching ($M = 4.50$), they had no difficulty in understanding basic functions of computers ($M = 4.17$), they believed that computers could be operated by everyone ($M = 4.33$), and most importantly they disagreed with the claim implying that computers complicate teachers' task ($M = 4.33$). At an overall mean score of 4.33, teachers' perception of computers' ease of use could be said to be positive.

Items	N	Min	Max	Mean	SD
31. It would be hard for me to learn to use the computer in teaching	12	3	5	4.50	.837
32. I have no difficulty in understanding the basic functions of computers	12	3	5	4.17	.753
33. Computers complicate my task in the classroom	12	3	5	4.33	.816
34. Everyone can easily learn to operate a computer	12	3	5	4.33	.816

Table 3.9: Teachers' Perceived Ease of Use of ICT.

3.2.5.6 ICT Compatibility with Teachers' Practices

Items 26 to 30 were devoted to exploring compatibility of computers with the current practices of our informants. The highest two values 4 and 5 are the modes for all the items, which means that teachers did believe that computers fit in their current teaching practices. Almost all the responses of our informants were consistent at standard deviation below 0.9, as they stated that computers had a place in schools ($M = 4.50$), fitted in their curriculum ($M = 4.00$), were appropriate for language teaching ($M = 4.17$) and suited learners' preferences and knowledge ($M = 4.17$). However, two respondents (33.3%) either thought that classroom time was too limited for computer use or felt undecided (neutral); consequently, standard deviation of item 20 landed at 1.265. Nevertheless, the 4.16 overall mean score can only mean teachers do actually believe that computers are compatible with their current teaching practices.

Items	N	Min	Max	Mean	SD
26. Computers have no place in schools	12	3	5	4.50	.837
27. Computer use fits well into my curriculum goals	12	3	5	4.00	.894
28. Class time is too limited for computer use	12	2	5	4.00	1.265
29. Computer use suits my students' learning preferences and their level of computer knowledge	12	3	5	4.17	.753
30. Computer use is appropriate for many language-learning activities	12	3	5	4.17	.753

Table 3.10: ICT Compatibility with Teachers' Current Practices.

3.2.5.7 Computer Observability

Items 35 to 38 address computers' presence and observability in our respondents' environment. Our informants seemed to be familiar with the presence of computers at their work place (item 35), and fully aware of their use as an educational tool (item 37). Similarly, teachers did not only acknowledge the adoption of computers in educational settings worldwide (item 36), they also recognized their presence in Algerian classrooms (item 38). Our respondents can be considered fully acquainted with the idea of computer presence in their place and field of work as the overall mean score of the four items is a staggering 4.54 with a consistency in responses below 0.82 and the highest value 5 as a mode for three items out of four.

Items	N	Min	Max	Mean	SD
35. I have never seen computers at work	12	4	5	4.83	.408
36. Computers have proved to be effective learning tools worldwide	12	3	5	4.67	.816
37. I have never seen computers being used as an educational tool	12	3	5	4.17	.753
38. I have seen some Algerian teachers use computers for educational purposes	12	4	5	4.50	.548

Table 3.11: Computer Observability in Teachers' Educational Environment.

Items	N	Min	Max	Mean	SD
1. Install new software on a computer	12	2	4	3.00	.894
2. Use a printer	12	3	4	3.67	.516
3. Use a computer keyboard	12	3	4	3.67	.516
4. Operate a word processing program (e.g., Word)	12	3	4	3.83	.408
5. Operate a spreadsheet program (e.g., Excel)	12	2	4	2.83	.983
6. Operate a database program (e.g., Access)	10	2	2	2.00	.000
7. Use the Internet for communication (e.g., email & chat room)	12	2	4	3.33	.816
8. Use the World Wide Web to access different types of information	12	3	4	3.67	.516
9. Use the World Wide Web to look for teaching material	12	2	4	3.33	.816
10. Use the World Wide Web and ICT to give students further practice at home	10	1	4	2.80	1.304
11. Use ICT for students' assessment	8	2	3	2.50	.577
12. Solve simple problems in operating computers	10	2	4	2.80	1.095
13. Operate a graphic program (e.g., Photoshop)	10	1	4	2.20	1.095
14. Use computer for grade keeping	9	2	4	3.20	.837
15. select and evaluate educational software	10	1	3	2.20	.837
16. Create and organize computer files and folders	10	2	4	3.20	.837

Section Six: Teachers' ICT Competence

Table 3.12: Teachers' ICT Competence.

Table 3.12 illustrates teachers' responses towards their perception of their computer competence. It is worthy of note that items 1 to 16 were presented by a 4-points likert-scale survey ranging from 1 (no competence) to 4 (much competence). Items in table 3.13 were also classified into basic computer skills (items 1, 2, 3, 4, 5, 7, 8, 9, 14, and 16) and advanced computer skills (items 6, 10, 11, 12, 13, and 15) to facilitate the analysis of the 16 items. Taking into account that the highest score (much competence) was 4 points, the overall mean score of 3.37 yielded by basic computer skills is significant, except for the fifth item that got the lowest mean score ($M = 2.83$) as 50% of our respondents had little competence in operating spreadsheet programs (e.g., Excel). As for the more advanced skills, the involved items got an overall mean score of 2.41, which means their competence in the skills entailed in this category were fairly low. Yet it is worth pointing out that some respondents were much more skillful than others as the responses varied widely to reach standard deviation of 1.30 in some cases as they ranged between 1 (no competence) and 4 (much competence).

3.2.7 Section Seven: Problems Impeding CALL Normalization

Responses to the items listed in table 3.13 were analysed in accordance to a 5-points likert-scale survey ranging from 1 (strongly disagree) to 5 (strongly agree). Our informants listed inadequate and aging facilities ($M = 4.80$) and absence of supporting technical staff ($M = 4.80$) as the top two issues followed by teachers' negative attitude towards computer ($M = 4.20$), teachers' computer literacy ($M = 4.00$), and high cost of equipment ($M = 4.00$). With mean scores ranging between 3.60 and 3.80, time needed for material preparation and students' negative attitude towards ICT were among the highest-ranking issues recognized by our informants. However, teachers seemed to agree that students' computer literacy ($M = 2.80$), lack of teacher training

programmes ($M = 2.80$), as well as cultural and social norms and beliefs ($M = 2.80$) were not the issues that impeded CALL normalization in Algeria.

Items	N	Min	Max	Mean	SD
1. The high cost of equipment	10	3	5	4.00	1.000
2. The time consuming material preparation	10	2	5	3.60	1.140
3. Inadequate and aging equipment and slow internet connection	10	4	5	4.80	.447
4. Restricted curricula that does not allow the integration of computers in teaching	10	1	5	3.00	1.581
5. The absence of supporting technical staff	10	4	5	4.80	.447
6. cultural and social norms and beliefs	10	1	5	2.80	1.789
7. Teachers' computer literacy	10	2	5	4.00	1.225
8. Students' computer literacy	10	1	5	2.80	1.643
9. The lack of teachers training on the integration of computers and technology in teaching practice	10	1	5	2.80	1.643
10. Teachers' negative attitude towards computers and technology	10	3	5	4.20	.837
11. Students' negative attitude towards computers and technology	10	3	5	3.80	1.095
12. Other	0	0	0	0.00	0.000

Table 3.13: Problems Impeding CALL Normalization.

3.3 Teachers' Interview Analysis

Teachers' interviews consisted of a set of open-ended questions designed to tackle the same aspects investigated by the questionnaire. However, it is worth of point that though the main aspects were covered throughout all the interviews, in some cases the researcher asked additional questions deemed necessary to gain more insight on a number of unforeseen issues as they were brought up by the interviewees. The main aspects that guided all the interviews are as follows

- Background characteristics
- Computer access
- CALL training
- Use of CALL in teaching (purpose, type and place)
- Affective domain of attitude
- Cognitive domain of attitude
- Behavioural domain of attitude
- Students' attitude towards CALL
- Advantages of CALL
- Disadvantages of CALL
- Problems impeding use of CALL
- Perceived solutions

3.3.1 Background Characteristics

The interviews were conducted with seven teachers, four males and three females. Their ages ranged between 24 and 64. As for the working experience of our interviewees, three teachers fell within the first category which consisted of those who had less than five years of experience, two other teachers noted that their teaching experience ranged between six and ten years, one female interviewee stated that her experience ranged between eleven and fifteen years, meanwhile only one male interviewee revealed that his experience exceeded the fifteen years of teaching. Five out of the seven interviewees were doctoral students who already held an MA degree; whereas, one interviewee held a PhD degree and another one pointed out that she had a Bachelor degree. Concerning the subjects they taught, six of the interviewees taught technical subjects such as grammar, written expression, ESP, educational psychology, and linguistics, meanwhile only one teacher noted that he was specialized in literature.

3.3.2 Computer Access

Concerning their use and access to computers and other technological devices, the majority of our interviewees seemed to be regular users, as six of them stated that they used technology in a regular manner or as interviewee number two put it “*I’m a kind of a person who uses technology every day, every time*”. The only exception was made by teacher number six who stated that he was not a regular user of technologies, referring this to the limited access and availability constraints. Nevertheless, most of the teachers who took part in the interview were eager users of ICTs as they noted that computers, laptops, smart phones, and internet were regular parts of their daily lives. In this regard, interviewee number three commented saying “*All the time, I practically use my computer for at least eight hours a day, yeah I spend more time with my computer than with my family.*” or number four who noted “*I always have my laptop with me, I use it for my studies, for almost everything*”.

3.3.3 CALL Training

As for receiving any training on how to integrate ICT in their teaching, five of the interviewees indicated that they had never received any kind of training, neither theoretical nor practical. Nevertheless all interviewees expressed their disappointment for the absence of such a training and maintained that they hoped for an opportunity to receive CALL training in the future either at the university or in an external institution, even if that was on their own expenses as it was stated by interviewee number one. Who also declared that she watched videos or documentaries as she called them on ICT integration in teaching in order to learn from them. On the other hand, interviewee number two claimed that he had the chance to receive practical and theoretical training on ICT incorporation at the university of Telemcen, where CALL was introduced for magister students as a subject under the name “ICT in education”, which he described as “*very advanced ... very high level courses and we have benefited from that a great deal*”. Meanwhile, interviewee number five stated that he had some training on ICT at a private institution and learned a great deal on how to use it on his own.

3.3.4 Use of CALL in Teaching (Purpose, Type and Place)

Regarding their use of CALL in their classrooms, interviewee number one stated that she did not use it before, however her use of the term “yet” confirms her previous claim that she was

keen on learning how to integrate CALL in her classroom in the future. The same thing applies to interviewees number six and seven who did not use ICTs in their teaching, while one of them referred this abstinence to the lack of ICT equipment, the other one attributed her decision to the nature of the subject she taught. As for the other four interviewees, all of them have employed ICT in their teaching. Interviewee number two stated that he used a computer and an data projector for material delivery, assessment, and diversifying his teaching according to his students' needs. Similarly, interviewees number three, four, and five used the same equipment, i.e. a computer and an data projector, yet just for material delivery and lecture reinforcement with pictures and videos. However, what is interesting about interviewee number three is that he had used CALL only when he was teaching in China where he had the chance to teach as well. When asked why he used CALL in China but not in Algeria, he stated that

“ Every classroom in China ... you know before they build a classroom they have requirements, first of all, computers must be installed in the classroom and cameras, so it's a necessity for them, so yes we had computers and we had to work with computers all time, because we cannot give a lecture without giving a PowerPoint, presentation of the lecture, err ... in China it is like this, you have to first give a PowerPoint presentation and most of the time since we had access to the internet we watch movies, listen to songs to help us you know ... ” (interviewee number three).

Then he added later on *“when we were in China they would give us a programme”*. So according to him the difference did not only lie in the availability of facilities and software, but imposing ICTs as a part of the curriculum in a way that required teachers to use them was also an important factor, as it can be discerned from the following statement

“ ... in China sometimes in a given period of time they required us to integrate movies and videos for the students, you have to actually, you don't have a choice, we had to show students some videos and sometimes some parts of movies in order for them to understand ... ” (interviewee number three).

3.3.5 Affective Domain of Attitude

During the interview, teachers were asked questions that aimed at exploring how they felt about CALL, and the answers varied from one teacher to the other. Teachers number one and six overtly expressed their appreciation for CALL and displayed no apprehension, as they pointed out that they did not feel that CALL threatens them as a teacher in any way, though they previously

stated they had never used ICTs in their teaching. Similarly, teachers number two, four, and five drew on their previous experiences with CALL, and revealed that they felt positive about it and stressed the fact that ICT was a very useful and a facilitating agent that they would welcome in their classrooms whenever needed. Moreover, all of the interviewees did not consider CALL a threat to their profession, except for number four who was more cautious about the future under technological advancement, and number seven who overtly stated that CALL might one day replace teachers. Interviewee number three was the exception, though he previously referred to earlier experiences with CALL and expressed his positive stance on the effect of ICTs on his teaching and that CALL should play a bigger role in our university, he also made it clear that he preferred traditional methods when he stated

“most of the time I give picture, I go to Google pictures and simply give them pictures about that I’m talking about and they get the idea, I merely rely on the internet only on that thing, just when I see it’s difficult for the students to understand, but I’m more into the conventional way of teaching.” (interviewee number three).

Later on he also noted that no matter how technologies developed, ICT would not be able to replace pen and paper, which he considered indispensable landmarks in conventional teaching; the same stance was taken by interviewee number six. This mixture of positive feelings towards CALL and refusal to relinquish traditional methods might stem from the nature of the subject that he taught, which was literature. Similarly, he was also cautious over the introduction of CALL as he pointed out that over reliance on CALL would not threaten the teacher but it would surely threaten the process of teaching.

3.3.6 Cognitive Domain of Attitude

Exploring our interviewees’ cognitive attitude towards CALL was carried out through questions that aimed at examining their knowledge and evaluative beliefs towards it. Some of our respondents were well informed about CALL than others, and that resulted from a number of factors most prominent of which were training and direct experiences with CALL. Definitions of CALL ranged between simply referring to it as the use of technology in teaching and learning like in the case of teachers one, three, and six, to a more elaborate one such as interviewee number two’s definition that covered other aspects related to the field and even presented a critical view

towards the interpretation of the meaning of the term CALL. However, all definitions were characterized by the use of terms and expressions such as “development”, “a very good tool”, “interesting”, “beneficial”, “useful”, and “make the teaching process go a lot easier”, the fact that reflected our respondents’ positive evaluative beliefs held towards CALL. Meanwhile, it seemed like interviewee number one, who had no experience with CALL, was the most impressed by what CALL was able to do, and consequently she was the most prone to the “Awe” factor and over estimation of CALL potentials as she stated that if provided with the needed ICT equipment, she would drop everything and use only computers. On the other hand, the other interviewees who had more experience seemed more careful, as they all stressed the fact that CALL was beneficial when properly used and that simply installing ICTs in a classroom without taking into consideration other critical factors such as training and curricula adaptation was not CALL.

3.3.7 Behavioural Domain of Attitude

As it has been discussed earlier, six out of seven teachers who were interviewed already engaged with ICT devices in their daily lives in a regular manner, and appreciated the presence of such tools and considered them indispensable. Similarly, all interviewees except for number one and six drew on their own experiences with CALL, which they deemed highly positive as it facilitated their practice. Interviewee number two pointed out that CALL helped him differentiate his teaching and its presence alone was enough to motivate students. Interviewee number three stated that the use of CALL for reinforcing lectures with multimedia content proved very effective in illustrating concepts, clarifying meanings, and contextualising the lectures. By the same token, interviewees number four and five both used CALL for content reinforcement and projection, and added that computers and projectors gave them a sense of freedom, as it was noted by interviewee number four who maintained that “... *it was useful to me so I could speak I could do whatever I want instead of holding a paper in my hand*” (interviewee number four). Given that all interviewees were aware of CALL benefits when they engaged with it, and also repeatedly implied that they would use it in the future, one can deduce that our interviewees’ perception of CALL effectiveness is high. However, this was not reflected positively on the behavioural attitude of all of them, as interviewees number one, three, six, and seven maintained that they would abstain from the use of ICT in their teaching practice for one reason or another.

3.3.8 Students' Attitude Towards CALL

When asked about students' attitudes towards CALL, our interviewees' responses interestingly varied as they saw this point in particular from different angles. Teacher number two stated it clear that students just pretended to have a positive attitude but, in fact, their attitudes would be negative if they were obliged to work with CALL and put up with the ensuing extra burdens, as he blamed this attitude on students' passivity

"... most of the time I think that they pretend that they have a positive attitude but in fact they have a negative attitude, why? ... when you are using ... the teacher is using technology for example a datashow for presentation and he is the one who is presenting they have a positive attitude, why? ... because they will stay on the desk and they ... are passive, but when technology is used and making them the ones who work, the ones who are supposed to do something they have a negative attitude because they are not accustomed with the use of technology and they do not like to be ... active and autonomous etc., they need the teacher to do everything so when technology is err ... a kind of a burden on them they have a negative attitude" (Interviewee number two).

However, interviewee number three believed that students' attitude were most probably positive, yet because they were, according to him, "*self-conscious*" it was up to the administration to organize seminars that introduce students to the concept of CALL as this might result in affecting their attitudes positively. Meanwhile, interviewee number four drew on her experience with an ESP class where the use of ICT did not only result in a positive attitude towards ICT but also changed students' attitude towards English language, as she stated that

" Well ... for ESP teaching I told you and I repeat I've never had training courses on ESP and it came to the idea last year to use the datashow and computer as a means to provide listening comprehension activities to students err ... who are not English students ok ... and it was really useful for me and for them, and they said yes miss the courses are really good and we like it, and I tried to have of course some activities that err ... go with their field, and the surprise is that I had students from the other teacher's class coming to my courses and I could notice the effect that the datashow had although I have never had training courses ... I believe it's good ... attitude change from negative because they were so afraid of English and ... umm they had never had English courses before ..." (interviewee number three)

Similarly, teachers number five and seven confirmed students' positive attitudes drawing on personal interactions, where students openly expressed their preference of ICT over traditional teaching methods and in some occasions even demanded its use.

3.3.9 Advantages of CALL

Regarding the advantages of CALL, our interviewees listed a number of them. All teachers agreed that CALL could help a great deal in reinforcing lesson content with pictures and videos that would help students understand better. Differentiation of instruction to suite students' learning styles was another advantage that our interviewees associated with CALL. CALL was also regarded as a motivating factor, as students would get excited when using ICTs for learning and tended to manifest more involvement in the lecture. Interviewee number one also stressed that the use of CALL would help her manage class time better and free more room for other aspects that were overlooked in traditional classrooms. At last but not at least, interviewee number two noted that CALL could help making students autonomous and independent from their teachers. However, all teachers stressed the fact that CALL was advantageous when used correctly and purposefully. Similarly, interviewees one and two maintained that the presence of CALL did not undermine or eliminate the role of the teacher in classroom, but rather shifted it to become more of a guide and a supervisor.

3.3.10 Disadvantages of CALL

When probed about the disadvantages of CALL, teachers provided various answers though they agreed on a couple of points. Teacher number one saw teachers' inability to find his/her place in the classroom and guide students as the most prominent disadvantage. Furthermore, interviewee number two noted that the main disadvantages included using technology for the sake of using it without a clear purpose and students' inability to manage it for their own benefits. Whereas, teacher number three thought that over reliance on CALL could encourage laziness among students and teachers alike. By the same token, teacher number six considered overreliance on CALL as a threat to teaching process where the focus get shifted from the teaching and learning process to ICTs themselves. Meanwhile, both interviewees number three and five stressed the economic downside of CALL use, as they noted that some teachers and students were unable to access or afford computers and other technological devices. Moreover, interviewee number three agreed

with interviewee number two on the fact that not all students were able to manage ICT and added other disadvantages, including inadequate use of CALL and the integration of ICT just to be referred to as an innovative teachers. Interviewee number seven was the harshest critic as she considered the main asset of CALL, which is facilitation, its biggest disadvantage, pointing out that students tended to rely completely on ICT to do the work for them while they assume an inert and passive role.

3.3.11 Problems Impeding Teachers from Using CALL

We asked our interviewees about the problems that impeded them from using ICTs in their teaching, and they raised a number of points that they considered major hurdles for them. Interviewee number one complained about the lack of the most basic facilities when she commented saying “*Sorry to tell you but we don’t even have heating ... it’s very cold ... and technology is so missing this is the most important point*” (interviewee number one), then she referred this to a bigger problem which was the tight budget. Similarly, interviewee number two highlighted the unavailability of technology at the level of our department as the most frustrating issue; however, according to him this was not the only problem as the institution as a whole did not guarantee an environment that is conducive to the integration of CALL. Then, the same interviewee also attributed the problem of CALL abstinence to the passivity and lack of autonomy on the part of the students who, in his point of view, were over-dependent on teachers and unable to act independently to use CALL to promotes their learning. Furthermore, he also laid the blame on the lack of appropriate teachers’ training and misconceptions held in regards of what constitutes proper ICT integration, which goes far beyond bringing computers and other ICT devices and placing them in the classroom. As he maintained that for ICT integration to take place a number of factors should be taken into consideration including

“... *how learners learn, the learning styles, the learning strategies, their personalities, to know about the sociocultural atmosphere of the classroom, is it appropriate to integrate technology or not, you know we say that our learners use technology in their daily lives but it doesn’t mean they use it for education because when we integrate ICTs, it is for the purpose of education ...*” (interviewee number two).

On the contrary, interviewee number three narrowed down the whole problem to one factor, which is absence of real will, when he replied “*I see no hurdles, simply there is no will*” (interviewee number three). He went on stressing that all the conditions for CALL integration already existed yet they were hampered by the mindset of individuals who were in charge. He then noted that

“The absence of will that’s all, I mean there is money, this university receives a budget, a great budget every year so where does budget go? so there is no hurdle, simply these people, people who are in charge in this university I think they are simply ... I’m sorry to use this term and I’m being recorded, they’re simply being coward to take great steps because people this is just a nature in people, people are always afraid of the change, something new, change, it scares them because they don’t know it yet ... Yeah change resistance, simply because they are afraid of the unknown ... so it takes a bit of a strong will and a bit of bravery really to decide for instance ... say tomorrow we are going to install Wi-Fi and have Wi-Fi access to all the classrooms and students for free ... and we’ll have an eLibrary, an electronic library, we’ll have ... computers in each classroom, I think it’s ok, you have the money just bring the experts and they will do the job for you ... apart from this there are no hurdles” (interviewee number three).

In addition to the interesting case that was made by interviewee number three, interviewee number four listed three major problems. She pointed out the absence of internet connection, the lack of teacher training on ICT integration in classroom, and the misconceptions held by people towards what constitutes CALL incorporation. Additionally, both interviewees number five and six considered the lack of appropriate facilities and equipment the main hurdle. Meanwhile, interviewee number seven regarded the state of “lagging-behind” that characterized Algerian educational system at all levels as the real impediment, as she noted that for CALL to take place there had to be a set of phases to be accomplished first, including the preparation of teachers, students, and materials.

3.3.12 Perceived Solutions

Regarding the aforementioned problems, our interviewees proposed a number of solutions. Interviewees number two and five suggested before any step is taken towards ICT integration, both teachers and students’ change resistance had to be addressed. As if their attitudes are negative towards CALL, teachers and students will stick to their old methods regardless to whether ICTs are available or not. Additionally, interviewee number two stressed the need for training teachers on how to use CALL properly and pointed out that it was teachers’ responsibility to show students

how to employ ICTs for their learning. Furthermore, both interviewees number two and six maintained that CALL absence problem went beyond the boundaries of one single institution and needed to be addressed at the macro level, including political and cultural levels. Meanwhile, teacher number three saw the solution towards CALL incorporation in rallying all the stakeholders (teachers, students, researchers, and administrators) behind this cause and keeping on insisting on the urgency of integrating CALL. Additionally, he referred to a method applied by the Chinese when they introduce innovative practices, which was the organization of seminars and conferences to introduce people to new concepts when he noted

“... I have noticed something in China that when they want make a change, when they want to present a new idea, they organize seminars and they invite foreigners, foreigners who have already done this in their countries, in the case of China for instance they would invite Americans, and most of the time American great writers, American professors from well known universities, they would invite them to attend these seminars and to show students that actually they have done it, we can do it, you see the idea, so yes I think this is it” (interviewee number three).

He also stressed the need for teachers to assume responsibility and stop relying on the administration to provide them with everything; therefore, he suggested that teachers could make use of some of the affordable and portable technologies to start applying CALL and introducing some change. Meanwhile, other interviewees suggested making appropriate facilities available and accessible were the first and most important steps to be taken.

3.4 Discussion of Teachers' Data

Both the interview and the questionnaire revealed that the majority of our sample population of teachers are regular users of computers and they are no strangers to different types of technologies (computers, laptops, smartphones, and internet) as they use them regularly in their daily lives. However, the places where they access these technologies seem pretty much limited to their living places as our department lacks the most basic facilities in the image of computer laboratories and internet connection; whereas, public places such as cybercafés are characterized by their basic equipment and poor services. Nonetheless, teachers' regularity of use and daily contact with technology is a sign of positive attitude and predictor of future incorporation of CALL (Kersaint, et al., 2003, cited in Faozieh & Abbas, 2013). In line with this argument, Cox et al,

(1999, cited in Mumtaz, 2000) note that regular use of technologies results in ICT use confidence, which not only makes CALL adoption process easier but also affects teachers' perception of CALL usefulness positively.

Regarding training on CALL integration, the majority of respondents (78.5%) stated that they either did not receive training at all or at least did not receive it from the university. The fact that brings to the surface the negligence of CALL in students' curriculum as studying years, especially post bachelor degree, can be referred to as pre-service teacher training. And being a student at Djilali Liabes university, the researcher can confirm that even when students receive computing lessons as a subject, it is entirely theoretical, decontextualized, technical, and completely irrelevant to ELL and ELT, in fact students learn about the different components of computers rather than how to operate computers or use them for learning purposes. On the other hand, formal in-service teacher training programmes, which most of the time do not exist at all for university teachers, tend to neglect the importance of training teachers on how to incorporate CALL in their teaching. Lack of CALL training can also be inferred from teachers' responses, which mainly limit CALL use to computers and data projectors, and failed to see how other technologies can empower and fit into their teaching practices especially the use of internet 2.0 applications. Likewise, our informants' limited perception of CALL and lack of training can be discerned from their tendency to restrict the use of technology for in-classroom content delivery without considering other options. However, respondents regret, especially in the interview, over not receiving CALL training and the willingness of some of them to undergo it on their own expense are positive signs that our teachers are fully aware of CALL importance and more likely to adopt it if circumstances are favourable.

Even if hardware and software are made available and accessible, without proper training teachers will simply abstain from using them (Gulbahar, 2007). Besides, CALL training does not only affect effectiveness of CALL implementation but also has a direct influence on teachers' ICT competence and consequently teachers' confidence level, which is crucial for CALL diffusion (Kirkwood et al., 2000). Furthermore, training needs to cover theoretical and practical aspects, and exceed the basics as it has to focus on helping teachers manage students' learning using CALL and prepare teaching materials using ICTs (pedagogical training) (Van Fossen 1999, cited in Jones, 2004; Jones, 2004). Training should also be delivered by teachers with experience in CALL use

and incorporation, as this will present students and teacher students with practical models to copy and help them contextualize what they learn (Jones, 2004; Whetstone & Carr-Chellman, 2001). Given that we tend to teach the way we were taught, we will find ourselves stuck in a vicious circle as CALL will keep being rejected at the level of our department unless teachers are trained on how to employ CALL and made aware of its range of uses and benefits, which they will eventually transfer to their students who represent the upcoming teachers generations.

Concerning teachers' computer skills, as most of respondents previously revealed that they are regular users of technologies, one can reckon that they have the basic skills needed to operate them, and this is confirmed by the significantly high overall mean score of 3.37 (out of 4) that teachers got when asked to rate their basic computer skills. However, our informants seem to be less familiar with other rather advanced computer applications as they got an overall mean score of 2.41. If a teacher lacks the needed ICT skills, s/he will not be able to function in a technology-enhanced classroom and play his/her role of being a facilitator, guide, assistant, and materials developer (Warschauer & Healey, 1998). Computer skills are a major determining factor of teachers' attitude towards CALL (Berner, 2003, cited in Faozieh & Abbas, 2013) as the more computer competent teachers are the more likely they are to adopt CALL. Still, even if a teacher believes that CALL is beneficial, s/he will not attempt to use ICT in his/her teaching if s/he lacks the needed skills and knowledge to make informed decisions and employ CALL efficiently (Faozieh & Abbas, 2013; Wang, et al., 2008). In addition to engagement, ICT competence also affects teachers' confidence in using CALL (Dawes, 2000, cited in Jones, 2004). Hence, low ICT competence will inevitably result in CALL avoidance (Jones, 2004). Teachers should not deem everyday basic ICT skills sufficient as they may not be able to transfer them to their practice, but they should rather aim at acquiring more advanced skills that help them incorporate CALL into their teaching effectively.

Almost 65% of teachers who have taken part in the interview and the questionnaire noted that they have used ICT in their teaching previously, however this use seems to a large extent to be limited to materials presentation and content reinforcement, mainly through computers and data projectors. This employment of CALL is completely limited to in-classrooms use, as the only computer laboratory at the level of our department is out of service and our teachers tend to turn a blind eye on the internet and rule it out of their options. Yet interestingly enough, one teacher have

not yet employed CALL at the level of our university, stated that he used CALL only when he was teaching in a foreign country, as the use of CALL was a requirement imposed by the administration there as a part of the curriculum. The fact that brings us to the third requirement of CALL normalization, where Chambers & Bax (2006, p. 477) note that

“If asked to identify one crucial factor, we would emphasize syllabus integration. This for us means the need to integrate CALL into the syllabus in such a way that teachers are expected, as often as the facilities allow, to use computers in their teaching”.

Therefore, it is not enough to put facilities in place but also to require teachers to employ them and use ICT in their teaching. Also some teachers, who despite their appreciation of CALL and their positive perception of its effectiveness, consider technology a threat to conventional teaching techniques and stated that they prefer traditional methods. This can be referred to the fact that we teach the way we were taught, and our current teachers studied solely through traditional methods that they tend to stick to. However, there is a need to break the vicious circle and accustom current students to the use of CALL, otherwise in the future we will suffer from a severe generation gap (Gruba, 2008; Bollin, 2003) and end up with teachers who use traditional methods in the midst of twenty first century regardless to technological development.

On the other hand, around 30% of respondents mentioned that they have never used CALL before, and referred this abstinence to a number of factors. First, some teachers believe that CALL has no added value as it is not more effective than their traditional methods, especially with some subjects that rely solely on lecturing. Second, other teachers consider time and effort required to prepare teaching materials using CALL a major repelling factor. Lack of time, which concerns CALL practitioners and non-practitioners alike (Cuban et al., 2001), not only affects teachers' material research and preparation but also CALL application in classroom and training (Manternach-Wigans et al., 1999, cited in Jones, 2004). Third, some teachers see the absence of the needed facilities a discouraging issue that complicates CALL integration. Both lack and inadequacy of materials can seriously hamper any endeavour towards CALL incorporation and dishearten interested teachers (Mumtaz, 2000). Fourth, other informants emphasized the lack of an environment conducive to the use of CALL at the level of English language department, as not only students lack autonomy and initiative but also the administration is reluctant and unwilling to incorporate ICTs, and more importantly individuals at different levels (administrators, teachers,

and students) are afraid of change. Fifth, lack of training is also a point that has been referred to repeatedly as a major issue. Similarly, informants also consider teachers' misconceptions about what constitutes CALL and how it should be employed issues that resulted in ineffective use of CALL and impeded its integration. Moreover, informants, especially in the questionnaire, emphasized the need for a supporting technical staff. Though supporting technical staffs are usually overlooked, research proved that technical glitches and unexpected system breakdowns result in teachers' frustration, low confidence, and anxiety, which usually lead to eventual ICT avoidance (Jones, 2004). Lack of supporting technical staff also results in keeping damaged equipment out of use for longer periods of time and push teachers to go back to their old trusted "chalk and talk" methods (Cuban, 1999, cited in *ibid.*). At last but not at least, some informants are just too attached to traditional methods and are not ready to give them up. However, in the interview teachers who revealed that they have not used CALL yet, they also expressed their willingness and readiness to use it in the future once the perceived issues are solved and circumstances allow them to do so.

Meanwhile, when asked about solutions that would make them more likely to use CALL, our respondents listed a number of measures they deemed necessary for overcoming the above-listed problems. The first step to be taken, according to our respondents, is to address change resistance issue, as it is a major factor that would determine whether other solutions would work out or not. Second, negative attitudes of teachers and students towards CALL also need to be changed so that they embrace ICT as a part of their classroom environment and make the efforts needed for successful CALL diffusion. Third, rallying stakeholders behind CALL integration project and organizing conferences to raise the awareness about CALL importance and benefits, is also one way towards changing the mindset of people opposing or doubting the worthiness of such a move. Additionally, pedagogical support is estimated by our respondents to be of a paramount importance, as such a measure would accompany teachers in their day-to-day practice and help them incorporate ICTs in their teaching more effectively. Similarly, training according to our informants is a *sine qua non* condition for CALL incorporation as it helps providing teachers with needed theoretical foundation and the indispensable first-hand experience. Teachers also pointed out that putting adequate facilities in place, especially internet connection and computer laboratories, is a fundamental move towards CALL integration. Along with the installation of ICT

equipment, respondents stressed the need for technical support that prevents disruptive breakdowns and guarantees smooth running of facilities.

As for teachers' attitude, both teachers' interview and questionnaire data analysis revealed that the sweeping majority of our informants, even those who have never used CALL, demonstrated a positive affective attitude towards CALL. This is not only evident in the overall mean score of 4.41 that questionnaire respondents got, but also in the responses of interviewees who overtly expressed their appreciation of CALL without displaying any signs of fear, apprehension, or inhibition. This positive Affective attitude is the first step towards CALL integration as a number of studies (Cox et al., 1999, cited in Faozieh & Abbas, 2013) proved that teachers who appreciate ICT and value its integration in teaching, are more likely to adopt CALL in their classroom if circumstances are favourable. Additionally, teachers' cognitive attitude towards CALL is positive as well, yet the degree of cautiousness varied from one teacher to the other and this is a natural result as cognitive based attitudes are more complex and therefore expressed with more doubt and less confidence (Hassad, 2007). Although teachers with the least hands-on experience with CALL are subjected to "Awe factor" (Bax, 2003), the more experienced and trained teachers are well aware of the fact that CALL incorporation success is dependent on other intervening factors and have positive evaluative beliefs towards CALL and its effectiveness. Similarly, teachers recognize CALL effectiveness in reinforcing their lesson content, differentiating their teaching styles, and motivating students. However, they did not hide their concerns over some disadvantages such as overreliance on technology and purposeless use of CALL. Nonetheless, almost all the disadvantages that informants mentioned lie in the misuse of CALL rather than CALL itself. This awareness of advantages and disadvantages is a sine qua non condition not only for successful CALL integration but also for the success of any CALL training programmes (Cox et al., 1999, cited in Jones, 2004).

In addition, while discussing their behavioural attitudes, teachers drew directly on their own experiences as CALL helped them cater to their students' needs more effectively. All informants, even those who have not used CALL previously, expressed their willingness to learn how to use CALL and maintained that they intend to employ it in the future in their classes. This positive behavioural attitude is associated with eventual adoption of ICT in teaching, increase in CALL use, and creativity in CALL employment (Zhao, 2007, cited in Almekhlafi & Almeqdadi,

2010). Meanwhile, attitude object observability is also a factor of a paramount importance that steers attitudes one way or another. In our case, the attitude object is computer in particular and technology in EFL classroom in general. The highly positive overall mean score of 4.54 gained by the questionnaire is affirmed by the acquaintance of sweeping majority of interviewees' with technology in educational fields. Thus, not only do our informants acknowledge that technology is used in EFL classrooms for educational purposes, but they are also fully aware of its positive impact worldwide, as one has even drawn on a personal experience in a foreign country where technologies are normalized. Teachers' acquaintance with the idea of using ICT as an educational tool is confirmed by their beliefs that CALL fits in their teaching practices, suits their students' learning styles, and conforms to curriculum goals, as they yielded a positive overall mean score of 4.16. Still, it should be pointed out that one interviewee could not see how CALL can benefit her students or fit within her teaching practices.

Regarding teachers' likelihood to adapt CALL, it could be measured through exploring their perception of CALL usefulness and ease of use as set in Davis' Technology Acceptance Model (1989) (previously discussed with more depth in chapter number two). The overall mean score of 4.33 that teachers got when asked about their perception of CALL usefulness is highly endorsed by interviewees' responses that assert that teachers do perceive CALL as a useful tool, which fits in their teaching practices and may help their students learn more effectively, as all of them referred to it as "*a very good tool*", "*interesting*", "*beneficial*", "*useful*" and "*make the teaching process go a lot easier*". Furthermore, all the interviewees were able to list a number strengths and advantages of having CALL in classroom, and most of them already have an idea (even if just a basic one) how it could be incorporated into their practice. Whereas, the drawbacks they pointed out only highlight their awareness of CALL limitations, which in this case is a positive sign as it reduces the chances for inflated and unrealistic respect and overestimation of what CALL can do, and consequently ensuing sense of disappointment with the outcomes. According to Yuen & Ma (2002) perceived usefulness affects CALL adoption more than perceived ease of use. However, this usefulness cannot be fully discerned unless teachers form an understanding of how CALL can be effectively employed and come to realize the range of possible applications and benefits of CALL integration (Mumtaz, 2000). The fact that brings us back to the need for CALL training.

As for CALL ease of use, informants' responses are positive but with some reasonable reservations. Questionnaire respondents noted that their computer basic skills are fairly moderate, however there are other more advanced and needed skills that need more honing. Additionally, taking into account that almost all teachers who took part in this research are regular consumers and users of technologies means that they already have at least some basic knowledge on how to manipulate ICTs, the fact that positively affects their perception of CALL ease of use. Moreover, besides the fact that 70% of interviewees have already used CALL in their teaching, the overall mean score of 4.33 obtained from the questionnaire confirms that not only our teachers are able to use technology to some extent but also believe that they can learn how to use it if offered the required training. Similarly, all interviewees stressed the need for training which they deem necessary for facilitating technology use and enabling them to employ CALL in an appropriate and effective manner.

In addition to Davies' TAM, the researcher also deems it important to take into consideration Venkatesh et al.'s (2003) Unified Theory of Acceptance and Use of Technology model (UTAUT is discussed in detail in chapter number two), which incorporates four main factors namely performance expectancy, effort expectancy, social influence, and facilitating conditions. First, as far as the first two factors (performance expectancy and effort expectancy) are concerned, they are just relabeling of Davies' perceived ease of use and perceived usefulness, which have already been discussed and proven positive. Whereas for social influence, our teachers' social subjective norms towards CALL seem positive, as CALL incorporation is not only perceived as a twenty first century necessity but also a sign of effective practice that affects teachers' image positively. As long as a CALL is employed in an appropriate and informed manner, the social environment (mainly other teachers and students) receive educational technologies employment with both respect and appreciation. Meanwhile, facilitating conditions which are defined in terms of "*training, support, and access to technology*" (Blackwell, et al., 2013), they are to a large extent subjected to administrative decisions, and until all these rather basic requirements are satisfied teachers may find it difficult to incorporate technology. Nonetheless, this does not eliminate the fact that some teachers are taking the initiative with their own means and try to incorporate CALL into their classes. Furthermore, one interviewee has even suggested that there is no point in waiting for the administration, as teachers should rather act on their own and work towards CALL incorporation with whatever means they have available.

3.5 Students' Questionnaire

Similarly to teachers' questionnaire, students' questionnaire consisted of different sections designed to answer the aforesaid research questions. These aspects are as follows

- Students' background information.
- Computer access.
- Use of CALL for learning.
- Students' attitude (affective domain, cognitive domain, behavioural domain).
- Likelihood of adopting ICT by students (perceived usefulness, perceived ease of use, compatibility with learning practices, computer observability).
- Students' computer competence.
- Problems impeding CALL normalization.

The type of questions in students' questionnaire also differed from one section to the other according to the nature of data that the researcher aimed to obtain. Section one consisted of closed-ended questions, section two and section four were mainly made up of multiple choice questions, whereas section three entailed open ended questions. Meanwhile section five, six, seven, and eight were likert-scale surveys as they were intended to measure Students' attitude, ICT competence, and opinions.

3.5.1 Section One: Students' Background Information

Figures 3.5 and 3.6 display age and gender distribution of students' sample who took part in the current study. Students between the ages of 21 and 22 combined represented 50% of the total number, followed by the ages 24 (11.2 %) and 23 (10.4 %) respectively. Whereas, ages 18 to 20 years old categories did not exceed 20% of the total number of the sample population. This age distribution was the result of the remarkable participation of third year and master students who represented the majority of informants.

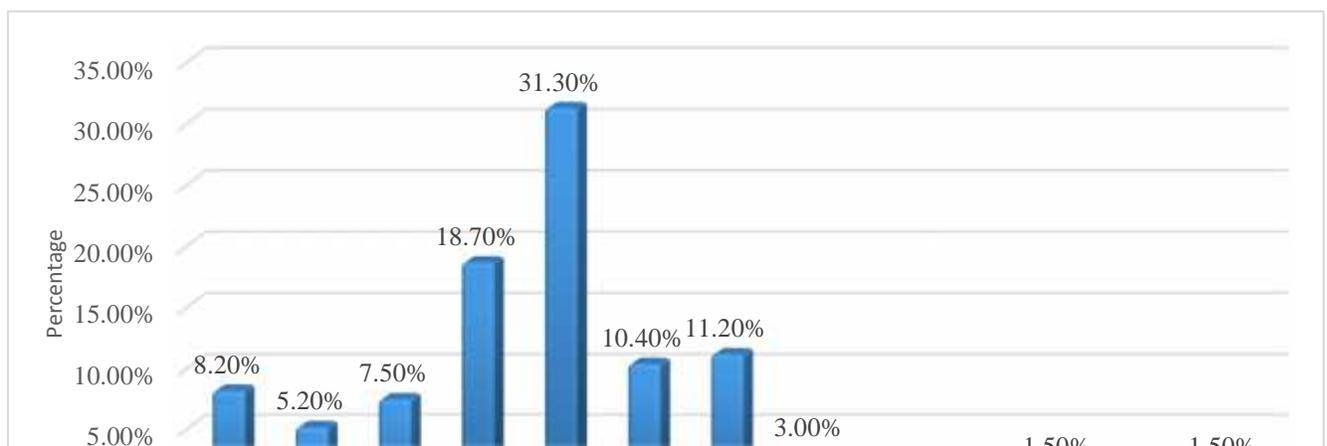


Figure 3.5: Students' Age Distribution.

As for gender distribution of the respondents, female participants represented the overwhelming proportion as their number exceeded the 86% of the sample population. Whereas the number of males did not exceed 18 informants (13.4%). It should be pointed out that the questionnaires were randomly distributed regardless to age, gender, or grade of the student.

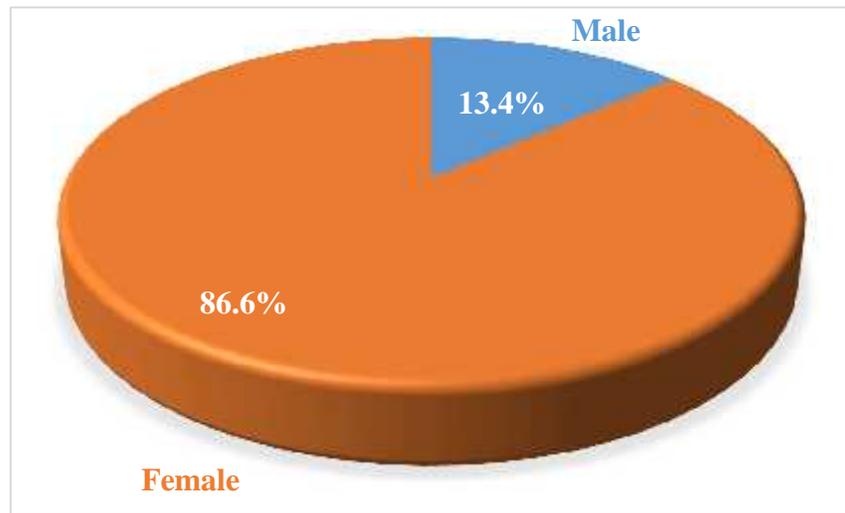


Figure 3.6: Informants' Gender.

3.5.2 Section Two: Computer Access

Table 3.14 illustrates respondents' access to computer devices in different places. Data in this table is presented in terms of frequency as well as description, as the means were calculated according to a 5 points likert-scale, in which "never" represents the minimum value (1 point) and "daily" stands for the maximum value (5 points). With a mean score of 4.19, home represented our students' most regular place of access to computers as a good proportion of respondents (64.2%) opted for "daily" as an answer. Meanwhile, the other two options "university" (M = 2.05)

and “other places” (M = 1.95) rarely provided an access to computer devices, as “never” was chosen as an answer by 45.5% of respondents for the former and almost 42% of informants for the latter. Nevertheless, it is worth pointing out that 15.7% of respondents revealed that they either “never” or “rarely” used computers at home, the fact that can be interpreted as the absence of these devices in the first place. Meanwhile, the 73.1% of respondents who chose “daily” as an answer across one the three contexts (home, university, or other places) can be considered regular users of computers.

	Scale	Frequency	Percent %	Mean	SD
Using computer at home	never	10	7.5	4.19	1.299
	rarely	11	8.2		
	once a week	9	6.7		
	2-5 a week	18	13.4		
	daily	86	64.2		
	Total	134	100.0		
	Scale	Frequency	Percent %	Mean	SD
Using computer at university	never	61	45.5	2.05	1.203
	rarely	30	22.4		
	once a week	25	18.7		
	2-5 a week	11	8.2		
	daily	7	5.2		
	Total	134	100.0		
	Scale	Frequency	Percent %	Mean	SD
Using computer in other places	never	56	41.8	1.95	1.071
	rarely	48	35.8		
	once a week	16	11.9		

	2-5 a week	9	6.7
	daily	5	3.7
	Total	134	100.0
SD: Standard Deviation			

Table 3.14: Computer Access.

3.5.3 Section Three: Use of CALL for learning

Figure 3.7 and table 3.15 portray the results of questions four and five that aimed at exploring students' use of CALL for learning and the type of CALL tools they used respectively. It is worth pointing out that in the fifth question participants could choose more than one option. Ninety (67.2 %) out of 134 respondents stated that they had used ICT for learning language previously.

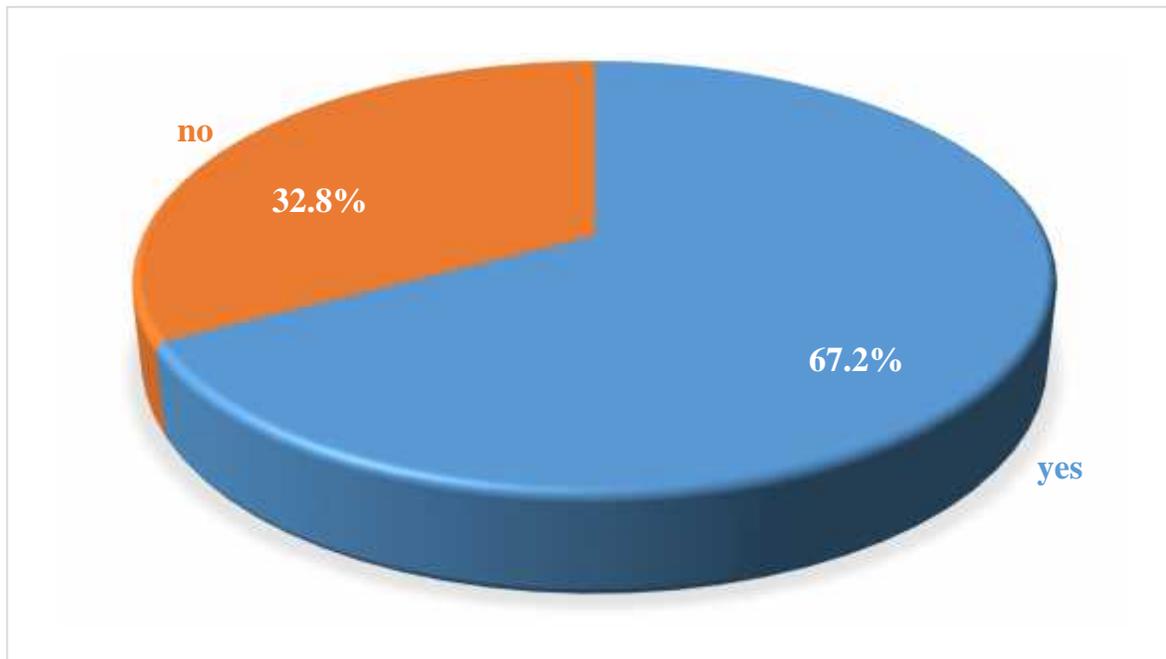


Figure 3.7: Using ICT for Learning Purposes.

As for the type of CALL that informants used, online language learning tools were the most popular among our students as internet websites and chat were chosen by 77.8 % and 44.4 % of respondents respectively. Among the internet websites listed by informants, British council online learning programmes and YouTube are the most frequent comments, whereas Facebook is the most cited network platform for chat category. Next in the line we find computer applications (28.9 %), book supplied CD-ROMs (17.8 %), and blogs (11.1 %). Meanwhile, the option “other” (12.2 %) was mainly dominated by TV series, films, eBooks, smartphone applications, radio, and podcasts.

	CALL type	Frequency	Valid Percent
Type of CALL used for learning	Computer applications	26	28.9 %
	Book supplied CD-ROMs	16	17.8 %
	Internet Websites	70	77.8 %
	Blogs	10	11.1 %
	Chat	40	44.4 %
	Other	11	12.2 %
	Total	173	192.2 %

Table 3.15: Purpose of using CALL by students.

3.5.4 Section Four: Students' Attitude

It is worthy of note that in section four a mix of negatively and positively worded items were used in order to reduce acquiescent response bias (Nunnally, 1967), and responses were obtained on a total five-point Likert-scale. Items were reverse-coded where necessary, so that higher values represented a more favourable disposition towards ICT. Meanwhile, responses were

represented by a mean score on a 5-points scale ranging from 1 (strongly disagree) to 5 (strongly agree).

3.5.4.1 Affective Domain

Results displayed in table 3.16 are responses to items 1 to 6, which were designed to measure affective domain of students' attitude towards ICT in learning. Except for item three ($M = 3.66$), all items' means scores ranged between 4.01 and 4.45 which are relatively high. Similarly, standard deviations for almost all the items remained at the level of one point which means that responses were to a certain extent inconsistent as mean scores varied between 1 point (minimum value) and 5 points (maximum value). Respondents demonstrated a number of positive signs as they revealed that they did not have apprehension towards ICT, they felt comfortable around computers, they appreciated the fact that there was an increasing number of computers, and they enjoyed using computer devices; consequently, students' affective attitude towards ICT can be said to be positive.

Items	N	Min	Max	Mean	SD
1. Computers do not scare me at all	133	1	5	4.01	1.026
2. Computers make me feel uncomfortable	134	1	5	4.18	.908
3. I am glad there are more computers these days	126	1	5	4.27	.958
4. I do not like talking with others about computers	134	1	5	3.66	.974
5. Using computers is enjoyable	134	1	5	4.19	.969
6. I dislike using computers in learning	133	1	5	4.45	.793

Table 3.16: Learners Affective Attitude Domain towards ICT.

3.5.4.2 Cognitive Domain

Items 7 to 15 were intended to measure cognitive domain of students' attitude towards CALL. Students' responses ranged between positive and neutral. On the one hand, they believed that computers were efficient means of accessing information ($M = 4.57$) that saved time and effort ($M = 4.43$), and that computers did have a place in the classroom ($M = 4.07$) as they could enhance learning ($M = 4.12$) through motivating students ($M = 4.01$). On the other hand, students remained less decided about whether computers should be used in all subjects ($M = 3.30$) and whether they would affect their learning positively ($M = 3.41$). With 4 points being the bench mark for what could be regarded as a positive attitude, the 3.98 overall mean score yielded by all the items combined can be considered a sign of positive cognitive attitude towards CALL with some reservations concerning a couple of points.

Items	N	Min	Max	Mean	SD
7. Computers save time and effort	133	1	5	4.43	.940
8. Schools would be a better place without computers	134	1	5	3.96	1.271
9. teachers must use computers in all modules	130	1	5	3.30	1.104
10. Learning about computers is a waste of time	134	1	5	4.01	1.022
11. Computers would motivate me to do more study	134	1	5	4.01	1.114
12. Computers are a fast and efficient means of getting information	134	2	5	4.57	.618
13. I do not think I would ever need a computer to learn English language	134	1	5	4.07	1.020
14. Computers can enhance my learning	126	1	5	4.12	.977

15. Computers do more harm than good	129	1	5	3.41	.965
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Table 3.17: Students' Cognitive Attitude Domain towards ICT.**3.5.4.3 Behavioural Domain**

Table 3.18 depicts learners' responses in regards to their behavioural attitude towards CALL. While our informants seemed willing to purchase CALL tools ($M = 4.09$), learn more about computers ($M = 4.10$), and use them in the future ($M = 4.36$); they remained undecided concerning whether they preferred traditional methods or using computer ($M = 3.34$). Despite the relatively high standard deviation scores, which means that responses varied widely, an overall mean score of 3.97 can only be considered a reserved positive behavioural attitude towards CALL.

Items	N	Min	Max	Mean	SD
16. I would rather do things by hand than with a computer	134	1	5	3.34	1.104
17. If I had the money, I would buy a ICT tools and materials to learn English language better	134	1	5	4.09	.969
18. I would avoid computers as much as possible	134	1	5	3.99	.985
19. I would like to learn more about computers	134	1	5	4.10	.917
20. I have no intention to use computers in the near future	134	1	5	4.36	.953

Table 3.18: Students' Behavioural Attitude Domain towards ICT.**3.5.4.4 Perceived Usefulness**

Items 21 to 25 were intended to explore students' perception of usefulness of CALL. Though our respondents remained undecided whether CALL was able to improve language learning ($M = 3.75$), they stated it clear that they believed that computers would improve education ($M = 4.28$), using computer in leaning was more advantageous than traditional methods ($M =$

4.12), and computers were useful for language learning ($M = 4.24$) as they would make subject matters more interesting ($M = 4.32$). With an overall combined mean score of 4.14 and standard deviations at around 0.8, one can conclude that learners did believe that CALL is useful.

Items	N	Min	Max	Mean	SD
21. Computers will improve education	132	1	5	4.28	.713
22. Learning with computers offers real advantages over traditional methods of instruction	131	2	5	4.12	.804
23. Computer technology cannot improve the quality of my learning	133	1	5	3.75	1.104
24. Using computer technology in the classroom would make the subject matter more interesting	133	1	5	4.32	.803
25. Computers are not useful for language learning	133	2	5	4.24	.770

Table 3.19: Learners' Perceived Usefulness of ICT.

3.5.4.5 Perceived Ease of Use

Table 3.20 exhibits the results of items 31 to 34, which were designed to measure students' perception of computer's ease of use. Though students' responses indicated that they had no difficulty in understanding basic functions of computers ($M = 3.84$) and disagreed with the claim suggesting that computers complicated their learning ($M = 4.11$), they remained somehow neutral towards whether they could learn how to use CALL ($M = 3.78$) and how easy it was for everyone to learn how to operate computers ($M = 3.65$). Nevertheless, an overall mean score of 3.84 can be interpreted as a reserved positive perception of CALL ease of use.

Items	N	Min	Max	Mean	SD
31. It would be hard for me to learn to use the computer in English language learning	132	1	5	3.78	.935
32. I have no difficulty in understanding the basic functions of computers	129	1	5	3.84	.991

33. Computers complicate learning and make it difficult	132	1	5	4.11	1.079
34. Everyone can easily learn to operate a computer	133	2	5	3.65	.906

Table 3.20: Students' Perceived Ease of Use of CALL.

3.5.4.6 Compatibility with Learning Practices

Table 3.21 portrays students' responses in regards to items 26 to 30, which were designed to explore whether CALL fitted within informants' learning practices. Students' responses varied between positive and negative. Though they believed that computers did have a place in schools ($M = 4.08$) and computer use fitted in language learning ($M = 4.21$), they remained undecided about whether computers fitted within curriculum goals ($M = 3.76$) and whether CALL suited their learning preferences ($M = 3.92$). Meanwhile, informants stated it clearly that they believed class time is too limited for CALL incorporation ($M = 2.53$). With an overall mean score of 3.70 and relative consistency in all responses (SD below 0.9 in most cases), one can venture to say that our informants remained undecided towards the compatibility of CALL with their learning.

Items	N	Min	Max	Mean	SD
26. Computers have no place in schools	133	1	5	4.08	.871
27. Computer use fits well into curriculum goals	122	1	5	3.76	.750
28. Class time is too limited for computer use	129	1	5	2.53	.993
29. Computer use suits my learning preferences and their level of computer knowledge	125	2	5	3.92	.747
30. Computer use is appropriate for many language-learning activities	131	2	5	4.21	.676

Table 3.21: ICT Compatibility with Students' Learning Practices.

3.5.4.7 Computer Observability

As for the computer observability in respondents' learning environment, four items (35 to 38) were put in place in order to examine it. Informants seemed familiar with the presence of computers in classrooms ($M = 4.13$) in general and Algerian classroom in particular ($M = 4.23$). Similarly, our respondents seemed to be aware of the idea that computers were already used as educational tools ($M = 3.97$) and, more importantly, that computers proved to be an effective learning tool elsewhere ($M = 4.28$). The 4.15 overall mean score of all the items combined can only be interpreted as a fair acquaintance of our respondents with the presence of computers in classrooms and their use as learning tool.

Items	N	Min	Max	Mean	SD
35. I have never seen computers in classrooms	132	1	5	4.13	1.101
36. Computers have proved to be effective learning tools worldwide	133	1	5	4.28	.700
37. I have never seen computers being used as an educational tool	132	1	5	3.97	.972
38. I have seen some Algerian teachers use computers for educational purposes	133	1	5	4.23	.834

Table 3.22: Computer Observability in Students' Educational Environment.

3.5.5 Section Five: Students' ICT Competence

Table 3.23 illustrates students' responses towards their perception of their ICT competence. It is worthy of note that items 1 to 16 were represented by a mean score on a 4-points likert-scale ranging from 1 (no competence) to 4 (much competence). Items in table 3.25 were classified into basic computer skills (items 1, 2, 3, 4, 5, 7, 8, 9, 14 and 15) and advanced computer skills (items

6, 10, 11, 12 and 13) to facilitate the analysis of the 16 items. The majority of our respondents could be said to have a moderate competence in basic computer skills including the use of a printer, using a keyboard, operating word processors, using internet for communication, using the internet to access information, and look for learning materials as the mean scores of all these skills ranged between 3.06 and 3.49. However, this did not apply to installing software, operating spreadsheet programs, and looking for educational software, where the low mean scores of these items (between 2.37 and 2.90) can be interpreted as little competence. As for the more advanced skills, except for the use of CALL to further practice at home (item 11), students' competence in other skills can only be considered limited as their mean scores ranged between 2.36 and 2.43.

Items	N	Min	Max	Mean	SD
1. Install new software on a computer	125	1	4	2.37	.921
2. Use a printer	122	1	4	3.06	1.055
3. Use a computer keyboard	125	1	4	3.35	.873
4. Operate a word processing program (e.g., Word)	124	1	4	3.09	.893
5. Operate a spreadsheet program (e.g., Excel)	126	1	4	2.47	1.001
6. Operate a database program (e.g., Access)	122	1	4	2.36	1.076
7. Use the Internet for communication (e.g., email & chat room)	127	1	4	3.43	.905
8. Use the World Wide Web to access different types of information	127	1	4	3.49	.853

9. Use the World Wide Web to look for learning material	127	1	4	3.36	.888
10. Use the World Wide Web and ICT to further practice at home	127	1	4	3.11	.838
11. Use ICT to enhance my proficiency in English	125	1	4	2.90	.957
12. Solve simple problems in operating computers	127	1	4	2.43	1.013
13. Operate a graphic program (e.g., photoshop)	126	1	4	2.38	.937
14. look for educational software	129	1	4	2.61	.895
15. Create and organize computer files and folders	129	1	4	2.90	1.124

Table 3.23: Students' ICT Competence.

3.5.6 Section Six: Problems Impeding CALL Normalization

Responses to the items listed in table 3.24 were analysed in accordance to a 5-points likert-scale ranging from 1 (strongly disagree) to 5 (strongly agree). Our informants remained to a large extent undecided about what can be considered the main hurdles that impeded CALL normalization in Algeria. High cost of equipment (M = 3.83) and the absence of supporting technical staff (M = 3.72) claimed the top of the list with the highest mean scores. Meanwhile, the rest of the issues listed in the table, they all got mean scores ranging between 3.22 and 3.56, in other words our respondents remained neutral in their stance on these issues. However, the exception was made by the 11th item where informants stated it clear that they did not consider students' negative attitude (M = 2.84) as an issue for CALL integration.

Items	N	Min	Max	Mean	SD
1. The high cost of equipment	115	1	5	3.83	.967
2. The time consuming material preparation	114	1	5	3.56	.932

3. Inadequate and aging equipment and slow internet connection	115	1	5	3.46	1.313
4. Restricted curricula that does not allow the integration of computers in teaching	112	1	5	3.55	.847
5. The absence of supporting technical staff	115	1	5	3.72	1.089
6. cultural and social norms and beliefs	115	1	5	3.36	1.061
7. Teachers' computer literacy	105	1	5	3.55	1.074
8. Students' computer literacy	113	1	5	3.27	1.190
9. The lack of teachers training on the integration of computers and technology in teaching practice	110	1	5	3.55	1.162
10. Teachers' negative attitude towards computers and technology	117	1	5	3.22	1.153
11. Students' negative attitude towards computers and technology	115	1	5	2.84	1.261
12. Other	1			1.00	.

Table 3.24: Problems Impeding CALL Normalization.

3.6 Students' Data Discussion

Questionnaire analysis revealed that around 70% of students' sample population are regular users of technology as they stated that they use it on a daily basis whereas the remaining 30% are less consistent users. This considerable proportion of students who do not use ICTs on a daily basis while living in an era dominated by technology and being part of a generation widely referred to as e-generation raises a lot of questions about our students ability to benefit from CALL. This lack of contact may be referred to two main reasons. The first one is the formulation of the question, which emphasized computers out of all technologies, as nowadays' generation tends to favour other rather smaller and portable devices such as smartphones and Tablet PCs. The second reason might well be the same one pointed out by teachers, which is some students' inability to afford a computer and other technological devices. The second reason applies for the 7.5% of students who stated that they never access computers at home, most probably due to the absence of these devices in the first place. Nevertheless, students' questionnaire results concerning place of computer access

complies with that of teachers, as home represents students' most favourable place of computer access, whereas university was chosen by a mere 5.2%, mainly due to the inexplicable absence of computer laboratories and internet connection in the first place.

As for the use of CALL for learning, results came congruent with that of computer access as 67.2% of students revealed that they have used it whereas the remaining 32.8% responded by no. Once again, quite a considerable number especially if we take into consideration that out of all languages, English language receives a huge attention from software developers, the fact that resulted in the creation of substantial numbers of English language learning websites, applications, and other CALL tools, most of which are free and easy to access. This disregard of CALL can be referred to a number of reasons including the absence of the needed means (computers, internet, ... etc.), low computer competence, teachers and university as a whole not playing their role in training and guiding students how to use CALL, or simply, as pointed out by one teacher, students' lack of autonomy and tendency to solely rely on teachers. Meanwhile, students who stated that they have had experience with CALL materials listed all types of technologies they have used, yet educational websites, videos, and CMC tools seem to be their favourites. This inclination towards these highly online tools can be invested in and used to promote students' learning.

Students' attitude towards CALL was measured in terms of three domains. The questionnaire revealed that students have a positive affective attitude ($M = 4.14$) as they did not demonstrate any sense of apprehension or fear towards CALL and seem to appreciate ICTs. Similarly to teachers' results, our students also displayed more uncertainty concerning their cognitive attitude and some of them remained neutral as they obtained an overall mean score of 3.98. Though respondents stated it clear that they believe that computers have a place in classrooms and may help save time and efforts, they appear unsure whether CALL should be used across all subjects and what effect it would have on them. This uncertainty towards the use of CALL across all the subjects and the ambiguities students have in regards to CALL effectiveness stem from students' unawareness of the different applications and benefits of CALL, which result from limited contact with educational technologies, and teachers' practices that either do not incorporate CALL properly or limit its use to the most basics. Correspondingly, students demonstrated a positive yet reserved behavioural attitude towards CALL as they got an overall mean score of 3.97. Though they expressed their intention to learn more about computers and even use them in the

future for learning purposes, they remained neutral towards whether they prefer CALL or traditional methods.

As discussed earlier in teacher data analysis, students feel more comfortable with the only methods they have ever experienced, i.e. traditional methods. Until teachers change their practices, incorporate CALL effectively, and raise students' awareness regarding CALL applications and benefits, we will remain stuck in the same vicious circle and most probably end up with future generations of teachers avoiding CALL and employing traditional methods. Similarly, the relatively reserved cognitive and behavioural attitudes are congruent with interviewee number two's point of view, who suggested that students do appreciate ICT as it is a regular feature of their daily lives, yet students' use of technology includes everything but their learning. Therefore, their attitudes towards CALL are positive until they find themselves in a situation where the use of CALL brings along extra responsibilities, and oblige them to switch from their passive mode where they do nothing except showing up in classroom and listening to the teacher lecturing, to a more active mode where they use CALL to manage their learning, assume responsibility for their learning pursuit, and basically be autonomous.

As for students' likelihood to adopt CALL, it was measured through exploring the perceptions of CALL usefulness and ease of use (Davis' Technology Acceptance Model, 1989). With an overall mean score of 4.14, students' perception of CALL usefulness is clearly positive. Conversely, the same thing does not apply to their perception of CALL ease of use, as an overall mean score of 3.84 can only be interpreted as a reserved positive perception. This perception relates to the doubts students have in regards to their ability to cope with a technology-enhanced environment, as respondents seem uncertain whether they would be able to learn how to use computers to learn English language and understand the different functions of computers. Furthermore, consistent (SD = 0.9) overall mean score of 3.7 that students obtained when asked about the compatibility of CALL with their learning practices exacerbates matters bit further, as despite their admission that computers do have a place in EFL classroom, students still doubt whether CALL fits into curriculum goals and limited class time. This contradictory and vague perception is a direct consequence of the lack of awareness of CALL's various uses and limited contact with effective educational technologies. Given that perceived usefulness affects CALL adoption more than perceived ease of use (Yuen & Ma, 2002), as ease of use can be achieved

through appropriate training and support, students' perception of CALL compatibility with their learning can only be overcome through proper modelling and positive experiences with CALL.

The overall mean score of 3.03 that students got when rating their computer basic skills confirms their claims that the majority of them are regular users of technology. However, informants disclosed that they have a low competence when it comes to more advanced skills that relate ICT directly to their learning, such as looking for and selecting educational software and using ICTs to enhance their language proficiency, the fact that confirms the doubts they expressed earlier when it comes to coping with a technology-enhanced learning environment. Students have access to some useful CALL tools such as computers, internet, smartphones, and free educational websites and software, yet their inability to make proper use of these tools and exploit them effectively discourages them and hampers any endeavour to incorporate CALL in their learning pursuit. Hence, making full use of CALL and amplifying its effect on learning necessitate proper training and guidance (Chien, 2004, cited in Wang et al., 2008). Nevertheless, if we take a closer look we will notice that students' computer competence results confirm their inclination towards the use of internet and CMC tools. Two major CALL tools that might have a tremendous positive effect on students learning pursuit if exploited properly and effectively.

3.7 Administrators' Interview Analysis

Administrators' interviews were conducted with the vice-dean of Faculty of Letters, Arts and languages and the then head of English Language Department respectively. It is worth pointing out that both interviewees also serve as lecturers at English Language Department, The fact that allows them to have a realistic image of the real state of CALL at the level of our department. Through a set of open-ended questions, the researcher attempts to explore the role of administration in CALL incorporating and gauge its stance on this matter. The responses of both interviews are analysed in terms of six points, they are as follows

- CALL incorporation encouragement.
- ICT facilities provided.
- Teacher training provision.

- Obstacles impeding ICT use.
- Perceived solutions.
- Future CALL projects.

3.7.1 CALL Incorporation Encouragement

The first question aimed at addressing the ways and measures taken by the administration to encourage the incorporation of CALL. Interviewee number one (vice dean) could not see how the administration was supposed encourage such a move, as in his point of view adopting CALL was a personal endeavour and a choice that could only be made by the teacher. He justified his answer by claiming that the incorporation of ICT was governed by a number of factors including “... [teacher’s] *educational background, ... knowledge of the technology ... if he feels comfortable with it he’s going to use it*”. Then he added that initiatives towards the adoption of CALL were discouraged by the dominance of Department of Arabic language teachers over the high ranking faculty positions, who according to him were more into traditional methods therefore they were not really in favour of ICTs, as he commented saying

“ ... *well I simply have to tell you the truth ... since the initiators of this faculty are Arabic department so they don’t care about using ICT during their lectures, ok ... those who think about introducing ICT are teachers of foreign languages, mainly English and a bit French*” (interviewee number one).

He also stressed the absence of the needed equipment as in the whole department of English there is only one data projector. As for the second interviewee (head of English language department), he stated that ICT was, to some extent, one of the areas encouraged by his administration, however he referred the subtle efforts done in this regard to his administration’s inability to take any actions or provide the needed materials and facilities, which he considered almost absent at the level of our department.

3.7.2 ICT Facilities Provision

When asked about the facilities provided by the administration, first interviewee’s answered by “*Nothing*”, a short answer however it clearly depicts the situation of ICT equipment

at the level of English language department. Both interviewees stressed the absence of ICT materials, except for one data projector for the entire department of English, or as it was put by interviewee number one “... *teachers are left alone, if you can buy a datashow you bring it with you and teach with your personal material and this is what some of the teachers are doing ...*”. However, it should be pointed out that amphitheatres are equipped by data projectors installed on the ceiling. The second interviewee revealed that the former faculty building contained a multimedia language laboratory yet it was not moved to the new location for no apparent reason.

3.7.3 Teacher ICT Training Provision

When asked about the provision of ICT training for teachers, both interviewees clearly stated that the administration did not provide such a training. Furthermore, both interviewees agreed on the fact that it was not the duty of the administration to provide ICT training for teachers, as according to them undertaking such a training was a personal initiative that should be assumed by the teacher, or as it was put forward by interviewee number two who commented saying

“No, unfortunately no ... and I don’t think it’s the duty of the administration to provide teachers with such a training ... now I think in my view as the head of the department and I’m speaking out of experience, such a thing can be done personally I mean if a teacher feels a need for that training, he has to do it, this is the way it’s done everywhere in the world, if a teacher needs some knowledge, some skills to use these ICTs I think it’s his duty to have a training not the administration ...” (Interviewee number two).

Furthermore, even after making it clear for the interviewees that the training intended by the question is not only basic computer training but also specialized training where teachers learn how to employ ICT for teaching purposes, both of them stuck to their first answers. Additionally, the second interviewee implied that all university teachers are supposed to have some ICT skills therefore it is their duty to acquire them.

3.7.4 Obstacles Impeding ICT Use

As for question number four, it aimed at exploring the obstacles that impeded the employment of CALL at the level of English language department. The first interviewee summarized the problems in terms of teachers’ lack of the needed ICT skills that eventually led to

apprehension, and the inadequacy of classrooms that did not allow proper use of ICTs. The second interviewee stressed the same issues, namely teachers' anxiety and lack of needed materials; however, he also highlighted another issue, which was change resistance. He stressed the fact that teachers were already accustomed to one way of teaching, and having them change their teaching practices and leave their comfort zone is a very hard task as he commented saying "*old habits are hard to die*".

3.7.5 Perceived Solutions

Then our interviewees were asked about the solutions they deemed appropriate to overcome the aforementioned issues. Providing teachers with the needed training and setting up adequate and equipped classrooms where teachers could employ CALL were the two key factors that the first interviewee deemed essential. This was in line with our second interviewee's point of view, who stressed the fact that teachers had to have training as he stated that

"... we have to oblige teachers to get training, if we are really in favour of these ICTs, this is on the one hand ... for training we can have evening sessions, we can have summer courses, I mean we can do it ..." (interviewee number two).

Additionally, he also accentuated the urgent need for providing necessary ICT tools and facilities in the image of language laboratories, data projectors, and internet connection. However, he acknowledged at the end of his reply that taking such moves would not be an easy task.

3.7.6 Future CALL Projects

The last question was devoted to investigating any future projects or endeavours that might be planned by the administration towards the incorporation of CALL. Once again our interviewees came to agree on the same answer, as they both opted for a "*no*" as a response, at least for the time being as they put it. Interviewee number one clearly stated it "*No way for change*", blaming this situation on the mentalities of teachers, especially experienced ones. He once again attributed the problem of ICT integration to the mentality of people in charge of the faculty as he commented saying

“... whenever we hold administrative meetings we state that we need more datashows but they say you've got one, two is enough, why? Simply because the mentality of those who are the head of the institution they don't care about using ICT and they don't know how to use it, maybe they've never used it ...” (interviewee number one).

However, he was bit more optimistic about coming generations of teachers provided that they receive the needed training. On the same vein, the second interviewee replied saying “*for the department I'm not really optimistic for the time being*”, referring this pessimism to the fact that the department and the faculty as a whole were overwhelmed by other more urgent issues such as coping with the large number of students and providing the needed number classrooms and amphitheatres. Issues seen by the administration as priorities and therefore “*go before ICTs according to them*”, then he concluded hoping that they would think about ICT incorporation in the near future.

3.8 Administration's Data Discussion

Both interviewees agreed that the adoption of ICT in teaching is a decision that can only be made by the teachers, overlooking by that the indispensable role traditionally played by the administration in such a situation. Taking into account that CALL adoption is a process that requires the total involvement of all the stakeholders, the administration should be aware of its role in planning CALL incorporation, providing the needed facilities, providing appropriate training for teachers, and taking steps towards incorporating CALL within the curriculum. In regards of this aspect in particular, Sheingold & Hadley's (1990) conducted a study after which they came to a conclusion that one of the three major factors that affect ICT incorporation is the degree of support that the institution provides to its staff, namely teachers. Once all preliminary requirements are accounted for, one may turn to the teachers and investigate reasons lying behind their abstinence from using CALL.

Furthermore, though our interviewees are well aware of the importance of CALL, they indicated that they are unable to encourage real incorporation of ICTs at the level of our department due to a number of organizational and logistic issues. It has also been noted by the interviewees that the highest ranking positions at the level of our faculty are dominated by members from Arabic language department, and as teaching practices at the level of that department are limited to

lecturing and traditional “chalk and talk” methods, they see little use in incorporating ICTs and prefer to shed the light on other areas that they deem more important. Stein (2005) stresses that failure to adopt ICTs in teaching mainly stems from stakeholders’ failure to understand its full potentials and benefits. In line with this argument, Hani (2014) maintains that individuals “*who are not technologically competent tend to believe that computers are worthless*”. Moreover, Faculty of Letters, Arts and Foreign Languages seems to be struggling with other fundamental issues such as coping with huge numbers of students, limited number of teachers, and lack of proper classrooms and amphitheatres, the fact that pushes CALL to the bottom of priorities list.

This marginalisation of ICT resulted in the absence of ICT training for teachers. The fact that that led to low levels of confidence among teachers, thus higher levels of ICT avoidance and resistance (Dawes, 2000, cited in Jones, 2004). Both interviewees noted that it is teachers’ duty to get ICT training as mastering the basics is a requirement for any university teacher. However, Manternach-Wigans et al. (1999, cited Jones, 2004) assert that expecting teachers to acquire ICT skills on their own is a source of frustration for teachers; therefore, they suggest a diversified ICT training course that accommodates all teachers despite their proficiency levels. Furthermore, our interviewees seem to limit training to ICT basic skills overlooking by that the real purpose of the question, which is a specialized training and not just one that addresses the rudiments. Besides basic ICT skills, there is another rather important aspect of training which is the pedagogical one. A study led by Jones (2004) concludes that even ICT competent teachers tend to avoid ICT integration, as the lack of a sound pedagogical foundation and practical models to follow impede them from putting their ICT knowledge into use in their classrooms.

Whereas concerning the provision of ICT materials and facilities, both interviewees indicated that ICT materials are absent, except for one data projector for the entire department of English language. Availability and access to adequate equipment and facilities is a rudimentary requirement and a sine qua non condition for any ICT integration plan (Mumtaz, 2000). It has been proven that the good employment of ICT is found only in institutions that possess high quality ICT resources (ibid.); otherwise, teachers would be left with limited options or, as in our case, no choice but to resort to traditional methods. Additionally, administration duty does not stop at providing the needed facilities, as other aspects in the image of instillation, operation, and maintenance of ICT equipment are also of a paramount importance (Hoon, 2009). Furthermore, one of the

interviewees noted that the department owned a language laboratory at its old location, but this laboratory was not relocated to the new location for no apparent reason. Failure to relocate existing facilities and make use of them can only be interpreted as a form of poor management and absence of planning.

Our interviewees agreed on a number of problems they deemed major hurdles for ICT incorporation at the level of our department. The major issue is the stark absence of ICT facilities and equipment as in the whole department of English there is only one data projector. As was noted earlier, one cannot expect teachers to integrate ICT into their practices in the absence of basic forms ICT materials. Another issue is the inadequacy of classrooms for projection, as according to our interviewees, students who sit at the end of the classroom struggle to see the projection. Chambers & Bax (2006) maintain that CALL integration requires a number of setting changes including *“improvements in the size, design and location of the technology, in other physical aspects of the educational setting”* (p. 466). Taking into consideration that the department building was designed and erected less than six years ago, leads us to question whether there is any sort of pre-planning, and most importantly whether there is any intention to incorporate ICT at all.

Another major issue highlighted by our interviewees is that of mentalities, as according to our interviewees the mentality of people who are in charge aborts initiatives towards ICT incorporation as their outdated way of thinking prevents them from seeing any added value that can be brought by such innovative practices. The problem of mentality is not limited to the heads of the faculty, as teachers, especially aged ones, find it hard to incorporate CALL, as this will require them to change their practices and adapt themselves to a completely new situation. Sife, et al (2007, cited in Hoon, 2009, p. 157), maintain that *“the effective use of technology requires a revolution in thinking about teaching and learning”*, similarly Patrick (2006, cited in Abod-her, 2013) argues that *“the implementation of new ways of teaching will require new ways of thinking around expert involvement, teaching, and curriculum methods that license teachers to connect with today’s learners”* (p.126). Therefore, integrating ICT may take much more than putting facilities in place and providing the needed training, as changing misconceptions, limiting change resistance to its minimum, and convincing the stakeholders of the worthwhile of taking such a step seem to be the cornerstones without which nothing can be accomplished.

3.9 Linking Research Findings to Research Questions

After analysing and discussing the data gathered through the different research tools, it is of a paramount importance to draw direct links between all the results and answer the research questions raised at the beginning of the present work. It should be pointed out that questions two and three are answered through the data analysis conducted in the current chapter, whereas question one's answer is based on the situational study presented in the first chapter. Meanwhile, question four will be answered in detail throughout the fourth and last chapter. It is worthwhile reminding the reader of the research questions that will be tackled respectively.

- 1) What is the current state of Computer-Assisted Language Learning (CALL) in Algerian education?
- 2) What are teachers and students' attitudes towards CALL at English language department at Djilali Liabes University?
- 3) What are the issues that impede the normalization of CALL at the level of the same department?
- 4) What measures can be taken to facilitate CALL normalization at English language department at Djilali Liabes University?

3.9.1 State of CALL in Algerian Education

ICTs in Algerian education live a state of schizophrenia, as reality contradicts official statements and plans put forward by the responsible ministries. Though, officials repeatedly state that the modernization of the educational sector through integrating ICTs is amongst the highest priorities of the succeeding governments since 2002, in reality very little change was made and much less success has been achieved. Initiatives at all levels were taken, most important of which are the introduction of computing as a subject for first year secondary school pupils, equipping high schools with computer laboratories, providing 60% of middle school and secondary school teachers with ICT training, launching a number of projects that aimed at placing new technologies at the heart of the educational system (Academic Research Network, Tempus-Meda Ide@, and eLearning project), lifting all constraints over the creation of virtual classes and virtual libraries, encouraging the delivery of learning materials through the internet and video conferencing, and establishing a world class Technology Park (Sidi Abdullah Technology Park), just to name some

of the steps that have been taken to introduce educational technologies into Algerian educational system.

However, all the aforementioned initiatives and endeavours were characterized by the lack of a clear strategy and definite plans, the fact that plunged them headfirst into tinkering measures and temporary solutions. A case in point is secondary school computing subject, which despite all the attention it received from the responsible ministry, we ended up with 2 hours a week sessions of rudimentary and unappealing content delivered by unspecialized and untrained teachers. Furthermore, while some projects remained mere promises (generalization of ICT instruction to include primary and middle-school education, and digitalization of school curricula), other initiatives never went beyond experimentation stage despite their admitted success (e-link and Med-Twinning). Additionally, most of the major projects and advanced facilities (Sidi Abdallah Technology Park) are concentrated at the level of the capital and major coastal cities depriving by that other parts of the country of the opportunity to benefit from the facilities put in place.

Equally important, mistakes made in former projects are blindly repeated and initiatives are cancelled once individuals standing behind them step down. In the same way, the absence of a communication strategy results in keeping most teachers and students unaware of the launched initiatives. Other core problems include the inappropriateness of ICT training provided to teachers, which is insufficient, decontextualized, limited to the mere basics, and ignores the pedagogical aspects. Moreover, ICT equipment and facilities are at best basic, limited in quantity, lack proper maintenance, and in some cases left unused. Besides, at tertiary level ICT integration and implementation of initiatives put forward by the government are to a large extent subjected to the will of people who are in charge of the university, therefore a substantial number of departments lack computer laboratories and internet connection, needless to talk about virtual libraries and delivery of lessons through online learning platforms. Hence, taking into consideration all the aforementioned factors, one may conclude that there have been some sincere attempts to integrate ICTs, however these efforts were hampered by the lack of a long-term strategy and thorough plans that ensure comprehensive planning, effective implementation, regular follow-up, and continuous maintenance and improvement.

3.9.2 Teachers' Attitude towards CALL

As for the second research question that aims at investigating teachers' attitudes towards CALL, these latter were explored in terms of three subdomains, namely affective attitude, cognitive attitude, and behavioural attitude. Our sample population clearly demonstrated positive attitudes across all the three domains, however, affective ($M = 4.41$) and behavioural ($M = 4.30$) attitudes scored higher compared to the cognitive one (4.16), which is perfectly natural as the complexity of this type in particular results in more doubt and less confidence on the part of the individual when expressing it (Hassad, 2007). Data gained through the questionnaire are confirmed by the analysis of the interview, the fact that leads us to conclude that teachers at the level of English department hold a positive attitude towards CALL with an overall mean score of 4.29. However, it is worth pointing out that the study failed to establish any direct links between teachers' work experience, gender, age, training, or previous use of CALL to the nature of their attitudes.

Additionally, our sample population of teachers demonstrated a number of signs that indicate their likelihood to adopt CALL if circumstances are favourable, including regularity of ICT use and mastery of basic ICT skills. Likewise, Teachers' positive perception of CALL usefulness and ease of use combined with their positive perception of CALL's social influence are major indicators of future CALL incorporation. However, these positive perceptions need to be combined with a training on how to incorporate CALL effectively and provision of ICT facilities, otherwise they will count for nothing (Mumtaz, 2000). Meanwhile, some teachers, despite their appreciation of CALL, they are reluctant to relinquish their traditional methods, as this is the way they were taught and the only method they have ever experienced in their classrooms. Nevertheless, such an issue can be overcome through effective training that provides proper modelling and links technical aspects of CALL to pedagogical ones (Cox et al., 1999, cited in Faozieh & Abbas, 2013).

3.9.3 Students' Attitude towards CALL

As for students' attitudes towards CALL, they were also measured in terms of affective attitude, cognitive attitude, and behavioural attitude. Unlike their teachers, students demonstrated a reserved positive attitude towards ICTs and their employment in teaching and learning. Though they manifested positive affective attitude with a mean score equal to 4.12, their cognitive attitude ($M = 3.98$) and behavioural attitude ($M = 3.97$) fell under the desired mean score of 4 points, which

is regarded as the benchmark for what can be considered a clear positive attitude. Nonetheless, with an overall mean score of 4.02, one can say that students do have a positive attitude though it is a reserved one at some levels. Meanwhile, providing students with practical models on how to employ ICT in a way that affects their learning process positively may improve their behavioural and cognitive perceptions of CALL and result in a more positive attitude. Once again, the research failed to establish any links between students' attitude and other variables in the image of gender, computer access, or previous experience with CALL.

Our sample population of students also exhibited a number of encouraging signs that indicate their preparedness for CALL adoption if circumstances are favourable. First, seventy percent of our students are already regular users of technology. Second, almost all regular users of ICTs (67.2% of the total number) have already used CALL for English learning and are familiar with some CALL applications. Additionally, students' positive perception of CALL usefulness is a major predictor of future use of CALL, whereas their moderate perception of its ease of use can be fostered through appropriate training, proper modelling, and successful engagement with CALL. Students also stated that they master ICT basic skills, which can help them improve their learning pursuit if offered proper training and guidance.

3.9.4 Problems Impeding CALL Normalization

Throughout their responses, our sample population, be they teachers, students, or administrators, identified a number of problems they deemed major hurdles that impede CALL normalization at the level of English language department at Djilali Liabes University. These hurdles can be clustered under the following categories.

- **Financial problems:** the faculty of letters, languages, and arts is currently struggling with fundamental issues in the image of coping with the huge number of students, the lack of teachers, and providing the needed number of classrooms and amphitheatres. Consequently, the presence of such core issues makes ICT incorporation looks like a luxury that can be postponed for a later stage. However, it should be pointed out that equipping

classrooms with basic ICT tools such as data projectors and permanent internet connection is not that huge financial burden that a faculty cannot afford.

- **Equipment and facilities:** the stark and unjustified absence of ICT equipment and facilities represents a handicap that discourages teachers and students alike from attempting to integrate CALL into their practices. In addition to the absence of hardware and software, there is no internet connection and classrooms are not suitable for CALL employment.
- **Poor management:** though the faculty entails a computer room, this room is left closed and unused for no apparent reason. In addition to that, the faculty possessed a language laboratory at its old location; however, the laboratory was not relocated to the new site.
- **Teacher training:** absence of training is also another core issue that was emphasized by teachers and administrators. As the faculty does not provide any form of ICT training for its teachers, be it a basic technical training or an advanced pedagogical one. The fact that affects teachers directly and exacerbates teachers' low self-confidence and ICT avoidance further.
- **Negative attitudes:** misconceptions held by stakeholders about any attempt towards CALL incorporation, as not only influential individuals and decision makers at the top of the faculty see little use in incorporating ICTs, some teachers and students also fail to see the added value that can be brought by employing CALL.
- **Limited perception of CALL:** throughout their responses, our sample population of teachers and administrators demonstrated a very rudimentary and limited conceptualization of CALL and its employment in FEL classroom, as the lack of proper pedagogical training leads them to narrow down CALL usage to material presentation mainly through laptops and data projectors, and failed to consider other options and possibilities.

- **Change resistance:** a number of factors including fear of change, fear of the unknown, feeling of unpreparedness, inability to adapt oneself to a new situation, and unwillingness to learn, all these factors create and perpetuate change resistance among different stakeholders (administrators, teachers and students) and repel them away from the idea of adopting CALL. A situation that is deemed to persist as long as the affected stakeholders fail to see the worthwhile of incorporating educational technologies.
- **Lack of a conducive environment:** absence of an ICT strategy, absence of administrative will and support, teachers' lack of initiative, and students' lack of autonomy and their overreliance on teachers are all factors that abort any chances for an actual ICT integration and result in an environment that is at best uncondusive and discouraging for CALL introduction.
- **Absence of administrative support:** when it comes to ICT integration, the administration is completely absent at all levels, as they do not provide any facilities or training. What is even more alarming is the absence of will, as the negative attitude and the no-need mentality of those who are at the head of the faculty indicate that the current situation is more likely to continue.

As it has been discussed in the above-listed answers, there is certainly a will to integrate ICT in Algerian education. However, this endeavour is hampered by a number of factors, most of which are human-related ones. This conclusion is confirmed by the set of problems that the current study diagnosed, as ICT incorporation is impeded by the mindset and mentality of stakeholders more than any other single factor. The situation is exacerbated furthermore by poor management and lack of cogent planning. However, to the contrary of what people would normally think, teachers' attitude is more positive than that of students, despite the fact that these latter are in a way much more acquainted with ICTs and other forms of modern technologies. Meanwhile, the fourth question is left unanswered as it will be tackled in detail in the fourth chapter.

3.10 Conclusion

The third chapter combines analysis and discussion of the data gathered through different research tools. Data of each sample population be it teachers, students or administrators is analysed, discussed, and reflected upon in accordance to the literature tackled earlier. Teachers' proved to have a more positive attitude towards CALL than that of students, and manifested a number of promising signs that indicate their likelihood to adopt CALL given that a number of requirements are met, most urgent of which are the provision of training and ICT equipment. On the other hand, students' attitude still requires more work as they remained reserved regarding a number of aspects. Additionally, the current chapter outlines a number of issues deemed the main reasons lying behind the impediment of CALL incorporation at the level of English department at Djilali Liabes University. Finally, data analysis and discussion chapter is concluded by an attempt to answer the research questions upon which the current study is based and pave the way for the proposal of a set of solutions and suggestions that will take place in the following chapter.

CHAPTER FOUR: *Implications and Recommendations*

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4.1 Introduction

The fourth and last chapter aims at proposing a set of suggestions and solutions in regards to the issues raised previously. All the proposed suggestions and recommendations are based on documented research tackled in the second chapter and the findings of the third one, in order to put forward a set of informed solutions appropriate for our specific context. This chapter addresses all the highlighted issues and raises the need for taking a number of actions deemed necessary. Besides the urgent need for equipping English department with basic ICT equipment and providing teachers with a comprehensive training, the present chapter calls for a more efficient managerial policy that guarantees allocating the needed funding and better management of the current facilities. Furthermore, it also proposes the organization of mass gatherings as a means to introduce the academic community at the level of English department to the concept of CALL and suggests the introduction of the Flipped Classroom approach as a solution to end the absence educational technologies from our classrooms. Finally, the researcher concludes with a CALL incorporation plan that takes all the previous suggestions and presents them under one comprehensive action plan.

4.2 The Need for Basic ICT Equipment

The absence of ICT equipment at the level of English language department is completely unjustifiable, as in the midst of the twenty first century our department still lacks the most basic technological tools despite the admitted and proven positive impact of CALL on teachers' practices and students' learning experiences, especially in encouraging learner-centred practices and collaborative learning activities such as project-based learning and independent inquiry, which help personalize students' learning and develop their agency (Kozma, 2003; Yuen et al., 2004). CALL also helps shifting teacher's role away from sage on the stage and towards a guide on the site (Condie et al., 2007; Lowther et al., 2003; Yuen et al., 2004) by enabling the provision of more authentic and meaningful activities based on real-world problems away from passive lecturing (Voogt & Pelgrum, 2005; Yuen et al., 2004). The use of ICTs by students in a learning context also develops lifelong competencies such as problem solving, information management, collaboration, and communication, which are vital skills for students' learning pursuit and professional careers (Kozma, 2003; Voogt & Pelgrum, 2005).

The presence of accessible ICT facilities represents a sine qua non requirement without which no CALL integration project can take place (Venkatesh et al., 2003). Thus, even with a

tight budget, the administration still should seriously consider providing at least basic ICT equipment in the image of a sufficient number of data projectors and permanent internet connection, given that teachers already possess laptops that they can use. Furthermore, putting in place a language laboratory with a sufficient number of computers, adequate sound system, and specialized software for teaching the basic skills such as listening and speaking is also a move that should benefit students considerably and help teachers tackle those overlooked skills properly. Meanwhile, virtual learning spaces must be accentuated, as setting up an e-library that enables students to access its content anywhere and anytime is a must as the physical one can no longer play this role on its own and accommodate the needs of the growing numbers of students. Another virtual learning space that had to be realized but unfortunately it remained just a dead link on the department's website is Media-Tech project, which was supposed to provide students with virtual lectures and access to online learning content.

Providing basic facilities, be they hardware or software, should not be that big financial burden that the faculty cannot afford, especially if we take into consideration the considerable sums of money that are allocated to other less important aspects that have little impact on teachers and students alike, including some unfruitful research projects and unnecessary training sessions abroad. Therefore, there is a need for a reconsideration of priorities and putting in place an effective managerial policy that makes optimum use of the budget and other financial resources. Similarly, there is a need for a better management of the already existing facilities, as the computer room that is left unused for no apparent reason must be made accessible for teachers and students. Moreover, the language laboratory that was left at the former location of the faculty should be relocated to the new site so that teachers make use of it. It is high time we altered the current situation, as the administration cannot continue depriving teachers and students from affordable technologies that could facilitate teachers' tasks and have a substantial positive impact on students' learning pursuit. In this regard, Sankey & Hunt (2013) stress that successful implementation of CALL requires a supportive administration and a collaborative staff that enables the change to take place.

4.3 The Need for Teacher Training

Teacher training is a vital requirement if we are to introduce CALL, as training directly affects other major aspects such as teachers' attitude and their likelihood to adopt educational technologies. Therefore, the administration must stop hiding behind the excuse of "*acquiring ICT literacy is teachers' personal responsibility*" and assumes its role in providing the needed

training, as according to Ilomäki (2008) the most effective types of ICT training are provided by the educational institution itself as they are designed in accordance to a pre-determined set of objectives. Similarly, as not all teachers are open to the idea of adopting CALL, providing ICT training to all faculty regardless to their attitudes and notions on educational technologies is an effective means to alter negative attitudes, encourage even the reluctant teachers to engage in technology-enhanced environment, and help prepare the faculty to embark on journey of continuous professional development where they make it their duty to explore different CALL tools and models and choose the ones that suit them best (Jonassen & Easter, 2012, cited in Agamba, 2015). Therefore, it is a top priority to provide the teaching staff with a basic ICT training according to their needs, followed by a pedagogical one that helps them put their technical knowledge into use and provide them with informed models on how to employ ICTs effectively in their classrooms. Teacher training programmes should be presented under the form of continuous professional development, bearing in mind that an effective professional development programme that aims at facilitating ICT integration *“requires training in a broad sense, [through] integrating teachers’ ICT competencies with their pedagogical knowledge and skills”* (Ilomäki, 2008, p. 29). These training programmes may take the form of regular workshops, study days, conferences, and/or seminars. Meanwhile, it is worth taking into consideration that the majority of our teachers are already familiar with basic ICT tools and stated that they already had some basic ICT literacy, the fact that makes their training relatively easier.

The pedagogical training should be provided by specialized teachers who combine experience in both teaching English language at tertiary level and using CALL for the same purpose, as only such trainers are able to guarantee that the course takes into consideration technical, pedagogical, and content knowledge (TPACK), link theory with practice, connect with EFL teachers’ challenges, and provide trainees with practical models to employ. Furthermore, faculty who tend to resist the incorporation of educational technologies, they usually do so because they fail to see how CALL can fit into their practices and how learning can take place away from brick and mortar classroom (Agamba, 2015). Therefore, it is imperative for the pedagogical training to include *“relevant theoretical frameworks that support and validate the appropriate use of technological tools”* (Agamba, 2015, p. 4), and that is through highlighting and clarifying pedagogical premises that underline the choice and purpose of each ICT tool. Another vital aspect that must not be ignored in the pedagogical part of training is that introducing ICTs to EFL classroom requires the revision of some of the old strategies

conventionally used by teachers under traditional approaches such as teacher-centred learning strategies, over-reliance on summative evaluation, and passive lecturing. Meanwhile, convincing teachers to enrol in such a professional development program should not be an issue as our respondents demonstrated a full awareness of the importance of ICT literacy, and, more importantly, they exhibited a strong will for taking such a training if it helps them incorporate CALL successfully into their teaching.

The technical aspect of training should focus on introducing teachers to CALL, its different tools and their applications, teaching methods and approaches conducive to CALL incorporation, and how to evaluate and choose different software and hardware that best suit their practices and help them meet their teaching objectives. Teachers should also be equipped with the needed skills to adapt their syllabus content and present it in a way that is ICT friendly. Similarly important, the training as a whole must prepare teachers to operate effectively in a technology-enhanced environment and equip them with needed skills and knowledge to not only curate the appropriate piece of software or hardware for their class, but also make sure they use it in a way that positively affects the experience of their students. As it has been noted earlier, due to the phenomenon of *“the apprenticeship-of-observation”* (Palahicky, 2015, p. 14), we tend to teach the way we were taught. Nonetheless, faculty at the level of our department must understand that they are faced with a unique challenge, as *“Perhaps for the first time in centuries ... instructors now have to teach in ways vastly different from how they were taught and from how they were taught to teach”* (Anderson, et al., 2010, cited in *ibid.*). Therefore, incorporating ICTs is not only a choice but also a must, and the only way to ensure effective diffusion of CALL at the level of our department is by ensuring that all faculty members engage in and receive a cogent and comprehensive training.

4.4 Introducing CALL as a Subject for Students

In order to avoid falling in the same pitfall again, there is a need to introduce CALL as a subject to Master students as a form of pre-service teacher training. Just as in the case of teachers, this subject must combine technical skills with pedagogical ones. Therefore, CALL subject may coordinate with the existing computing subject to provide students with the needed technical ICT skills, practical models for CALL employment, and get them acquainted with various CALL tools so that they can employ them to foster their learning and, at a later stage, improve their teaching practices. Such training is imperative to encourage and help students make use of technologies that they use in their daily lives, as though students are in a constant

contact with different technologies, the lack of guidance and training impedes them from making use of them for learning purposes (Agamba, 2015). Similarly, there is a need to urge teachers to incorporate CALL in their teaching regularly in order to get students acquainted with the use of CALL in EFL classroom, and familiarize them with educational technologies in teaching and learning contexts. Thus, we tend to teach the way we were taught, and unless the current vicious cycle is broken now, we risk perpetuating ICT avoidance among future generations of EFL teachers.

4.5 Introducing the Concept of CALL to the Stakeholders

When it comes to CALL, misconceptions and lack of knowledge on the part of some teachers, students, and administrators seem to affect their attitudes negatively, cloud their judgements, and perpetuate their abstinence from ICTs. Even in the case of those who have a positive attitude towards CALL, the lack of sufficient knowledge leads them to avoid considering educational technologies as an option, simply because they do not know how they could fit in such a technology-enhanced environment. Therefore, there is a need for a communication policy and an effective means to familiarize all stakeholders at the level of our department with the concept of CALL and help them explore the field of educational technologies. This objective can be achieved through organizing seminars, study days, workshops, and conferences where all the stakeholders are introduced to CALL, its different applications, and the positive impact associated with its incorporation. As only by enlightening the minds of teachers, students, and administrators through factual evidence and compelling arguments delivered by field experts that we would be able to correct misconceptions they might have, help them explore this obscure territory, and hopefully encourage them to consider CALL as an option for their practices.

This type of gatherings is also a good means to keep all the involved agents updated on initiatives taken by the government and responsible ministries towards the incorporation of educational technologies. As it has been noted earlier, many endeavours were limited to the capital and failed simply because teachers and students in other parts of the country and sometimes within the capital itself never knew about them. Moreover, seminars and conferences represent excellent opportunities for participants to engage in discussions and ideas exchange that lead to gaining better insights into the subject in question, and even motivating participants and inspiring them to engage in the new practice (Chowdary et al., 2004). Teaching and learning practices at the level of our department are deeply rooted in traditional methods, and most

teachers and students are sticking to “talk and chalk” method simply because it is the only way they have ever experienced. Thus, there is an urgent need to change the status quo by shedding the light on other available options and more advantageous alternatives, in order to normalize ideas such as CALL amongst our teachers and students communities, and basically establish a new culture away from dysfunctional practices that characterize our educational scene.

4.6 Choosing Appropriate Type of CALL

As an educational institution aspiring to deliver quality education and meet its students’ expectations, English language department at Djilali Liabes university can no longer afford avoiding the incorporation of CALL, as it is high time we thought of ways to effectively introduce educational technologies into the curriculum in a way that accommodates our teachers and students’ needs and takes into account our technical and logistic limitations. The applications of ICTs in educational settings can only be limited by the lack of creativity and imagination on the part of its users, as new ways of employing different types of software and hardware across all the different language skills and curriculum areas are being developed and documented on a regular basis. Teachers and students’ individual initiatives to incorporate CALL into their practices represent a healthy phenomenon that must be encouraged and supported; nevertheless, finding a solution to normalize CALL at the institutional level is a necessity if we are aspiring to meet global standards of higher education and scientific research arena. However, as discussed earlier, our department faces a number of limitations at all levels, the fact that needs to be taken into consideration when planning CALL incorporation. Under the presence of current issues, most important of which are the lack of basic ICT facilities, tight budget, lack of proper training, and presence of other fundamental problems, CALL integration can only be realized through the adoption of a blended learning model that is easy to plan and apply, and does not necessitate the presence of significant ICT equipment.

4.6.1 Defining the Flipped Classroom

Blended leaning takes a number of forms the fact that resulted in the emergence of several models that make use of different technologies employed in different ways. Nevertheless, they still all agree on the fact that face-to-face instruction must be strategically combined with online and/or computer led instruction in a way that accentuates strengths of both modes and helps overcome their weaknesses. The main models of blended learning are Lab Rotation model, Station Rotation Model, Flex Model, Flipped Mastery Learning model,

and Flipped Classroom model. Out of all these models, Flipped Classroom approach stands out as the most suitable model for our case, and that is due to a number of technical considerations, as

1. It operates on basic and affordable ICT tools.
2. It does not require a significant financial involvement from the administration.
3. It is relatively simpler to plan and apply when compared to other models.
4. It is easy to train teachers and students to apply it.
5. There is a considerable body of research and literature that investigates the planning and application of the Flipped Classroom approach to fall back on when needed.
6. Its positive impact on teachers and students' practices is proven and documented.
7. It paves the way for the application of other more complex models.

The original pioneers behind the Flipped Classroom concept, Bergmann and Sams (2012), refer to it in terms of *“which is traditionally done in class is now done at home, and that which is traditionally done as homework is now completed in class”* (p. 13). Sankey and Hunt (2013) pay a special attention to the term “flipped” and refer it *“to the provision of tailored online resources and learning activities that facilitate student preparation for classroom study time which is then focused on application and consolidation”* (p. 786). This approach, which makes use of technology to expand the learning environment beyond physical boundaries of traditional brick and mortar classroom, mainly consists of freeing class time for active learning by moving lecturing and passive reception of information outside the classroom to be carried out by students on their own (as demonstrated in figure 4.1 below). In other words, lectures are delivered to students in the form of videos through the internet to view before coming to classroom, whereas class time is almost entirely devoted to active learning, consolidation, and remedial teaching. Thus, it is of little use to waste class time on lecturing then let students struggle alone with content application and contextualization in the absence of teacher's assistance (Boyer, 2013). According to Sankey and Hunt (2013) the main aim of the Flipped Classroom is to move away from passive lecturing and tutorials towards *“scaffolded learning experiences based on a series of activities and workshops, or by mediated online discussion”* (p. 787). The concept of *“scaffolded learning”* raised in previous definition refers *“learning that lasts and*

can be recalled and used effectively after the ... [course] has been completed” (Angelo, 2012, p. 99).

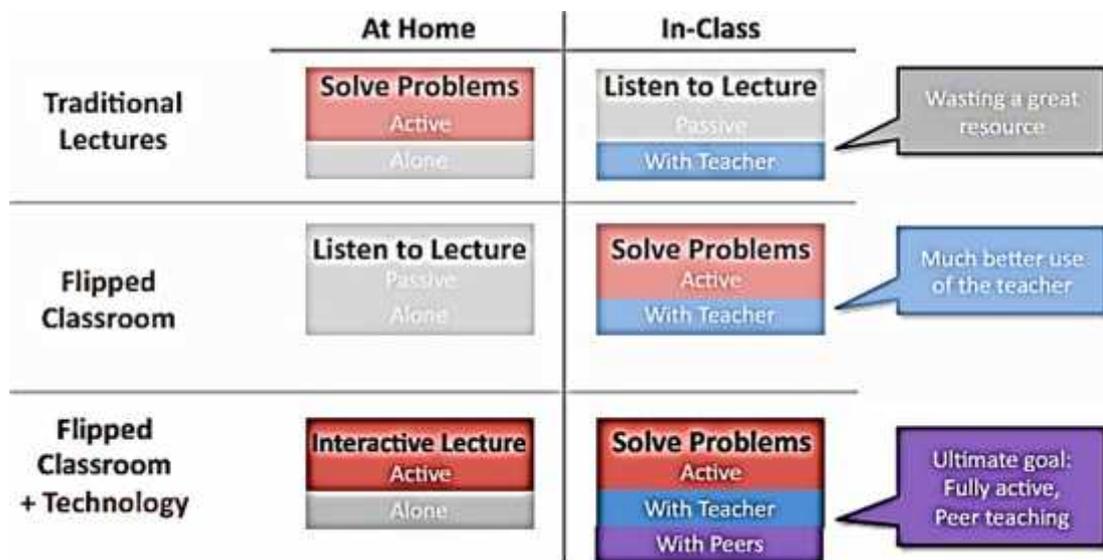


Figure 4.1: Flipped Classroom Approach (adopted from Black-Shaffer, 2013)

The Flipped Classroom approach can be identified in terms of two phases. First, the outside of classroom phase, where the teacher makes a video lesson or curates a readymade one from the internet and uploads it online for students to view before coming to classroom. To upload the video lesson online, teachers rely on Learning Management Systems (LMS) to not only post the video lesson, but also supplement it with comprehension questions for students to answer (as demonstrated in figure 4.2 below) and attach additional files and links to other websites for further reading and exploration of the topic in more depth. As they watch the video lesson and answer the questions, students also have access to CMC tools (social media, chat rooms, emails, discussion boards ... etc.) to get in touch with their peers and teacher, discuss the content of the lesson, and receive feedback on their enquiries. The second phase, starts when the teacher uses the LMS to track students’ activity outside the classroom and collect their answers and enquiries. The LMS also enables the teacher to access other data including the number and identity of students who watched the video and completed the tasks, and which areas of the video students found most confusing. All these data are to be analysed and used to effectively guide the in-classroom instruction by addressing areas that need further remediation and the points that students found problematic. Furthermore, the Flipped Classroom approach invests in in-class time heavily. Thus, as passive tasks are moved outside the classroom for students to complete on their own, in-classroom time is freed for engaging students in an active

learning environment where the focus is on activities that employ higher order thinking skills, cooperative learning, peer-assisted learning, experiential learning, problem based learning, project based learning, and task based learning.

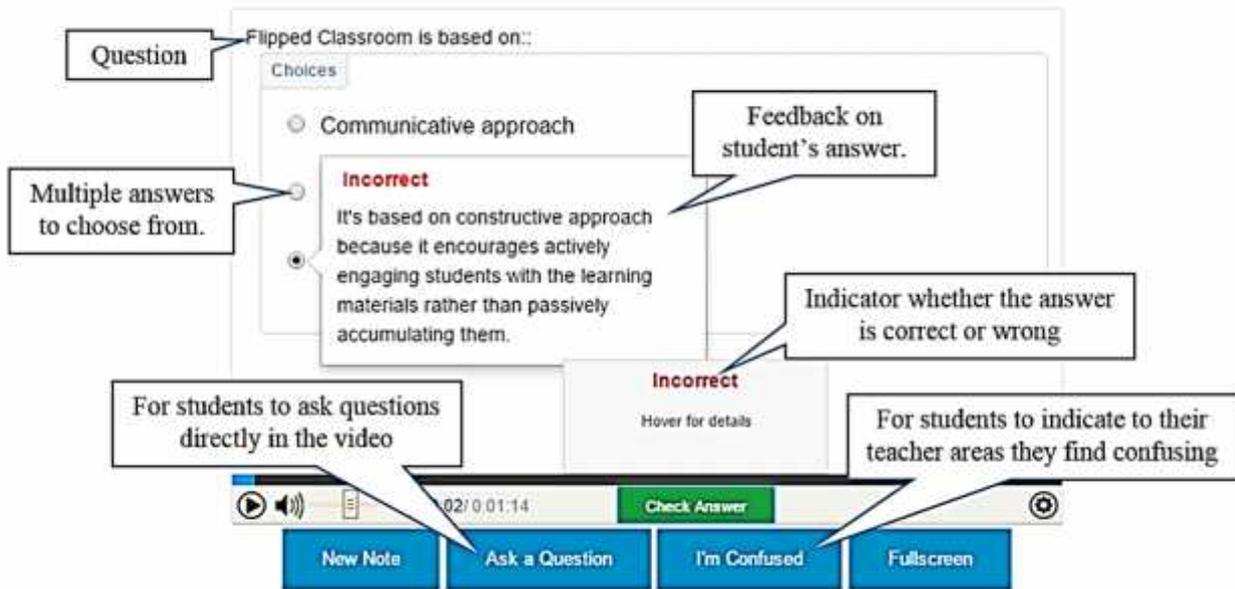


Figure 4.2: Learning Management System used by Scalable-Learning Project.

Current generations of learners are accustomed to the flexibility and convenience that technology provides them throughout their daily activities and expect their learning experience to be just as convenient and flexible (Agamba, 2015). Besides distant interaction with learning materials at any time and any place, Flipped Classroom allows students access to interactive learning tools that enable reviewing results and receiving feedback in real time without the need for waiting until the next classroom meeting (ibid.). Away from the blind awe by technology per se, the Flipped Classroom is based on sound pedagogical principles as it *“combines pedagogy and learning technologies in ways that extend to large numbers of student’s opportunities for deep learning through application and consolidation”* (Sankey & Hunt, 2013, p. 787). The pedagogical principles upon which the Flipped Classroom is premised are deeply rooted in constructivist learning and can be summed under the following points

- *an emphasis on students being active in constructing their understanding of knowledge;*
- *a focus on discovery, exploration, experimentation and developing and testing hypotheses;*
- *project work, research-based learning, problem- and enquiry-based learning methods;*
- *awareness of the learning process through use of reflective learning activities, self-assessment and evaluation;*

- *the role of the teacher as a guide, providing ‘scaffolding’ to learning – that is, to ensure the student has the requisite knowledge, skills and support to negotiate a new piece of learning – and prompting the student through questioning or modelling.’*

(Sankey & Hunt, 2013, p. 788).

Furthermore, the Flipped Classroom approach is known for engaging students in a Rich Environment for Active Learning (REAL), as the entire learning experience

- *promotes study and investigation within authentic contexts;*
- *encourages the growth of student responsibility, initiative, decision making, and intentional learning;*
- *cultivates collaboration among students and teachers;*
- *Utilizes dynamic, interdisciplinary, generative learning activities that promote higher-order thinking processes to help students develop rich and complex knowledge structures; and*
- *Assesses student progress in content and learning-to-learn within authentic contexts using realistic tasks and performances.*

(Palahicky, 2015, p. 19).

Hunt et al. (2012, cited in Sankey & Hunt, 2013) argue that under the Flipped Classroom, teachers’ role shifts from both ‘a sage on the stage’ and ‘a guide on the site’ to be what they labelled ‘a meddler in the middle’ who “*challenge students to think and understand differently ... [using] a repertoire of activities that will engage students actively in learning ... [through] buzz groups, debates, lectures and small group work for peer learning, independent study and negotiated learning*” (p.788). Therefore, the employment of CALL under the Flipped Classroom not only focuses teachers’ time and efforts on areas that need their attention the most, but also challenges them to assume new roles and push the envelope further to provide their students with a meaningful and fruitful learning experience.

4.6.2 The Reasons behind Choosing the Flipped Classroom

A number of studies have proved the superiority of the Flipped Classroom approach over traditional face-to-face teaching methods. Day (2008) indicates that the employment of technology under the Flipped Classroom approach allows teachers a greater range of flexibility and helps free in-class time almost entirely for hands-on active learning activities (project

related group presentations, small breakout group discussions and presentations, and role-playing activities), which are highly appreciated by students in terms of educational value and enjoyment. Meanwhile, Black-Shaffer (2013) observed that flipped classroom not only helped boost students' engagement by 40% and raised attendance numbers by 20%, but it also hiked the rates of peer instruction and collaborative learning tremendously (2.5 Std. dev.) compared to traditional classroom. Additionally, Day (2008) notes that students under flipped classroom earn higher scores than those in a traditional classroom. Similarly, the University of Florida noted that blended learning courses, including Flipped Classroom, witnessed a lower rate of students' dropout at 2.8% compared to 3.1% in face-to-face courses, and higher success rates at 90.8% compared to 87.7% for traditional methods (Moskal, 2013). Still other studies (Clark, 2013; Simonson, 2011, cited in Agamba, 2015) came to a conclusion that the difference in student performance between the Flipped Classroom and traditional classroom was not significant, though they admit that the appropriate employment of CALL certainly results in a richer learning experience and, therefore, must not be overlooked.

Additionally, Reeve (2013) investigated students' engagement and concludes that the Flipped Classroom provides a supportive learning environment that helps boost students' behavioural, emotional, cognitive, and agentic engagement both inside and outside the classroom, the fact that positively affects learners' academic attainment and enhances active learning in the classroom. Moreover, the way the Flipped Classroom is designed and implemented also urges students to assume a more active role in and outside the classroom and take more control of their learning (Pring, 2012, cited in Siegle, 2014). Meanwhile, a survey conducted by Flipped Learning Network in 2012 (cited in Clark, 2013) concludes that the Flipped Classroom improved the attitude of 80% of students towards school. Whereas, as far as the substitution of lecturing by a video lesson is concerned, Bishop and Verleger (2013) confirm that video lessons have the same effect as face-to-face lecturing, and in some cases it outperforms it. Similarly, video lessons have been found to have a positive effect on students' academic achievement (Flumerfelt and Green, 2013; Wilson, 2013), create more opportunities for active learning (Leicht, et al., 2012, cited in Jamaludin & Osman, 2014), and boost learners' engagement (Wilson, 2012).

The employment of CALL under the Flipped Classroom is not an end in itself but rather a means that aims at enabling the expansion of learning environment beyond physical boundaries of brick-and-mortar classroom and turning class time into a REAL. This clarity

regarding the main reasons behind the employment of ICTs under Flipped Classroom approach is a decisive factor that should boost its acceptability among teachers, as it is confirmed by Al-Bataineh et al. (2008), lack of clarity regarding the purpose of ICTs use is among the main reasons that deter teachers away from incorporating them. Similarly, the Flipped Classroom approach is deeply rooted in constructivism, thus its major aim is to limit passive lecturing and encourage active engagement with learning materials through automating tasks that can be automated (delivering lesson content and correcting comprehension questions) and investing teacher's effort in areas where it is really needed and make his/her presence in the classroom more impactful (engaging students in active learning environment and providing corrective feedback, consolidation, and remedial lecturing). Additionally, students' academic attainment is strongly affected by teacher's feedback and Flipped Classroom approach allows teachers more classroom time to analyse students' individual needs and respond accordingly (Siegle, 2014). Furthermore, the way CALL is employed under Flipped Classroom approach conforms to the normalization criteria as set by Bax (2003, 2006, 2011), and that includes

- *invisibility of CALL;*
- *regularity of CALL use;*
- *integration of CALL into the syllabus;*
- *absence of awe and fear;*
- *primacy of learning over CALL;*
- *meeting criteria of effective education;*
- *and conformity with neo-vygotskian framework.*

(Bouchefra, 2016)

The fact that not only makes Flipped Classroom approach conducive to CALL integration but also its eventual normalization. Additionally, Flipped Classroom approach has been opted for because it meets the five basic criteria that facilitate innovation adoption as set by Albirini (2006), and they include

1. its proven advantageousness over traditional methods,
2. its flexibility and compatibility with teachers' regular practices,

3. simplicity of its application,
4. its documented positive effect over students' attainment and engagement,
5. and its applicability at a limited basis before final adoption.

The Flipped Classroom approach is the appropriate solution in our case because it is based on the employment of basic ICT tools (computer, internet, video recorder, CMC tools, and LMS) that are affordable and accessible for almost all stakeholders without the need for a significant administrative financial involvement. Additionally, the employment of basic ICT tools facilitates teachers training, as the majority of teachers are already acquainted with the use of all the involved ICT tools, except perhaps for LMSs and other basic software like PowerPoint-to-video converters and screen recorders, which are relatively easy to train on and use. Furthermore, out of all CALL tools that students previously experienced, they seem to prefer the use of the main ICT tools used under Flipped Classroom approach, namely internet, CMC tools, and videos. Similarly, the Flipped Classroom approach guarantees the integration of CALL into the curriculum in a way that ensures its regular use and ultimately its normalization. Likewise, the way in-class time is invested under the Flipped Classroom approach guarantees the eradication of passive teacher-centred practices and helps promote a new culture of constructivism and REAL-based learning and instruction methodologies. Equally important, teachers and students' acquaintance with the use of CALL under the Flipped Classroom approach will pave the way for introducing other more complex and effective models, in the image of the Flipped Mastery Learning that allows more opportunities for self-directed learning, students agency, mastery-based learning, and personalized learning.

4.7 CALL Introduction Plan

All the above listed recommendations are put forward to address different issues that have been identified throughout this research. However, in order to accentuate their impact and ensure comprehensibility in tackling CALL absence at the level of English language department, it is imperative to organize all the identified recommendations under one thorough action plan based on the experiences of other pioneering educational institutions and designed in a manner that takes into account our institutional limitations and any possible thwarting factors, most important of which are negative attitudes and change resistance. As change resistance is inevitable, the best way to deal with it is by anticipating it and being prepared for it (Fine, 1986). If we bear in mind that out of all types of institutions, educational ones are the

most likely to resist innovative change (Ponticell, 2003), CALL introduction process at the level of our department will be no exception, and therefore it must be done according to a plan that limits change resistance to its minimum. The introduction process of the Flipped Classroom approach must comply with the different stages of “Innovation Decision Process theory” as set by Rogers (1995), which entails Knowledge, Persuasion, Decision, Implementation and Confirmation. For these reasons, the researcher suggests the following guidelines that should facilitate CALL introduction process, keep it on the right track, and increase its success chances.

The cornerstone of the project of introducing CALL is forming a committee composed of administrators and faculty members to be in charge of implementing the project at the level of our department. This committee is to be responsible for a number of organizational aspects; however, its most important task is to define the ultimate objectives behind such an innovative move. Therefore, they are tasked with answering a number of questions including

- *Why should the institution engage in blended learning?*
- *What are our goals, and what outcomes do we expect to achieve, both initially and longer term?*
- *What student benefits do we seek—improved success, increased persistence, shortened time-to-degree, etc.?*
- *What courses or programs will we offer in a blended format, and why?*
- *How will we engage and support our faculty in order to make them successful?*
- *How will we roll out blended learning throughout the institution?*
- *Where do we begin?*
- *What levels of investments are we prepared to make and what returns do we expect?*

(Moskal, et al., 2013, pp. 15-16).

Though the current work aspires to answer a number of these questions and address them in detail, providing the answers by a recognized committee should give them a recognisable formal status and determine the overall policy that shapes the implementation process and keeps it on track. The goals and objectives of introducing the approach should be clear and well defined, as they must be a combination of “*institutional goals, faculty goals, and student goals*” (ibid., p. 16), given that it is not viable to focus on one aspect and ignore the others. Moskal et

al. (2013) list a number of possible goals usually identified by institutions aiming at adopting a blended learning model.

“Institution-centered goals might include more efficient use of classroom resources, or extending campus outreach. Faculty-oriented goals can include improved teaching through faculty development and adoption of innovative, student-centered teaching practices. ... student goals are increased convenience and flexibility, expanded access, greater student academic success, or enhanced information literacy” (p. 16).

Though the Flipped classroom approach that the researcher suggests is a low-cost blended learning model, it still requires some financial resources to fund gatherings, teacher-training programmes, providing some basic ICT equipment, and providing technical support. Hence, the committee should figure out an effective funding model that depends on either generating new financial resources or reallocating already existing ones. The sum of money that the institution allocates to the project depends on whether it sees it as an *“expense, or an investment”* (ibid., p.18), and that can be figured out through considering a number of aspect associated with blended learning, including

“... improved teaching practices through increased faculty development, more efficient use of classroom resources, providing more convenient and flexible learning opportunities for students, and growing enrollments through increased access. ... more active student learning, active participation and interaction by a greater proportion of students, more flexibility in the use of time and space, and a sense of accomplishment for mastering new tools and techniques” (ibid.).

Therefore, the committee must entail individuals who are well knowledgeable about CALL and its positive impact so that they can see the worthwhile of taking such a move and putting in place the needed financial resources. Similarly important, once the goals are set, they should be presented to the faculty whose approval is imperative as they *“have a stake in the initiative and its success, and the goals established must ultimately be acceptable to them because blended learning is ultimately all about teaching and learning”* (Moskal et al., 2013, p. 16). Ultimately, the goals set by the committee should align with the views of all stakeholders and aim at the success of blended learning incorporation initiative. Furthermore, the committee is expected to develop new policies or update existing ones so that the proposed innovative change project aligns with the institution’s overall policy, and that concerns a number of areas including *“quality, control, recognition, reward,*

intellectual property ownership, and workload” (Moskal et al., 2013, p. 16). Developing a proactive policy and addressing these crucial aspects early on should help shed the light on a number of issues before they develop and become a source of change resistance, and relief faculty’s concerns and help rally them behind the project (ibid.).

Before introducing the Flipped Classroom approach to teachers and students, there is a need for conducting pilot studies at the level of English language department, where the approach is applied with a limited number of students to confirm what has already been asserted by a number of studies conducted worldwide, which is how purposeful and strategic employment of basic ICT tools under the Flipped Classroom approach could improve students’ learning attainment, engagement, and final grades (Day, 2008; Black Shaffer, 2013; Reeve, 2013). As eliminating any doubts that teachers may have about the possible benefits of CALL employment and how it might benefit their learners are major requirements for educational technologies to be accepted by the faculty (Yildirim, 2007; Al-Bataineh et al., 2008). Additionally, such experimental studies should also allow project managers to form an overall idea about a number of unpredictable aspects including how the approach would work out in our context, students’ reaction to the approach, and technical and pedagogical challenges that might get in the way. In case of a failure in one aspect or another, the experiment should be repeated after making the needed amendments and modifications until the positive results are achieved and a polished well-defined model is identified.

Then, once the results of the study are gathered and the approach is proven successful and applicable in our context, there is a need to organize gatherings be they conferences, seminars, or study days where teachers and students are introduced to the approach and the positive yielded results. Besides informing the academic community at the level of English language department about the upcoming innovation diffusion project and how it would unfold, such gatherings should help teachers form an overall idea about the approach, how it is applied, and how it would affect their practices and their students. Furthermore, the gatherings should aim at introducing the stakeholders to the main goals of adopting the Flipped Classroom approach, including a clear definition of the approach so that the involved individuals form a clear perception of the upcoming situation and know what to expect (Moskal et al., 2013). They should also aim at convincing the teachers and students that (1) the new approach is advantageous over their traditional methods, (2) it can fit into their current practices, (3) it is applicable in our context, (4) it is effective and that through factual evidence, and that (5) the

approach can be tested at a limited basis before ultimate adoption (Albirini, 2006). McBride (2007) confirms that teachers tend to be more receptive to the ideas of incorporating technological aids into their classrooms when *“presented with evidence that shows positive effects of the new teaching method on quality of learning outcomes and develop expertise in the new method”* (p. 165). Additionally, these gatherings should provide all the involved individuals, be they administrators, teachers, or students, with a common language to enable and encourage exchange of ideas and extensive deliberation of different aspects (Moskal et al., 2013).

The next step is to provide teachers with holistic professional development courses that embed technology into pedagogy and ensure providing teachers with an applicable Flipped Classroom model to apply, with enough room for them to be creative and adapt some aspects according to their needs. Professional development courses must be an opportunity for teachers to *“observe demonstrations on tools and their inherent variations with specific emphasis on differing circumstance of use based on learning objectives and the pedagogical underpinnings of such use”* (Agamba, 2015, p. 6). It should be pointed out that one-size-fit-all type of training is not optimum for an institution introducing CALL for the first time, as there are two categories of teachers, the ones who are *“already enthusiastic about the benefits of blended delivery and have varying degrees of experience, ... [and they] require PD that focuses on optimizing CALL integration”* (ibid.), whereas the second category entails

“... faculty who dismiss blended instructional delivery, it requires PD that will distinguish traditional face-to-face instructional practice from blended delivery. For this group of faculty, the practical demands of added time and work required for planning, organizing, designing and delivery of content (Simonson, 2011) for blended instruction is a significant consideration” (ibid., p.7).

Therefore, tailoring training programs that take such differences into account is of a paramount importance, if not vital for the success of the entire initiative. Teachers need to be trained how to apply the approach and be familiarized with the different technologies entailed in the Flipped Classroom, and that might include how to make a video lecture or curate a readymade one from the internet, how to use LMS software to post the video online and track students’ activities and gather their data, how to effectively employ CMC tools to get in touch with students outside the classroom, and how to access, embed, and use other types of software and resources that might enrich students’ learning experience in and outside the classroom. Other aspects that should be covered by the training include addressing the recorded lecture pacing and length,

choosing the necessary aspects of the lesson to cover, providing sufficient background information and scaffolding, making students' out-of-classroom experience interactive, and incorporating engaging comprehension questions into the video lesson (Siegle, 2014; Black Schaffer, 2013). As teachers become more experienced with the basic CALL tools upon which the Flipped Classroom is premised, it would be appropriate to introduce other rather advanced tools that could enrich the learning experience of students and boost their active engagement (Palahicky, 2015), and that may include the introduction of structured discussion forums (Google groups), e-Journals (Penzu), and content development and sharing tools (Wikis, blogs, glossaries, Soundcloud, Audioboo, iPadio, ...ect.). The technical part of training should capitalize on first helping teachers understand the rationales and pedagogical underpinnings that led to using each tool, as ***“Only by first understanding the benefits of each tool for instruction, can faculty then become stakeholders and want to learn their application”*** (Agamba, 2015, p 6). The training must also focus on the in-class part, as investing in-class time in engaging learners in an active learning environment is a vital aspect without which the Flipped Classroom approach is deemed a failure. After investigating four case studies of successful implementation of the Flipped Classroom approach at institutional level, Sankey and Hunt (2013) conclude that one of the main secrets of the success of the investigated faculties is ***“effective integration of constructivist pedagogy while utilizing a range of learning technologies ... [to] shift from lecture driven courses to process-driven curriculum design, based on learning activities”*** (p. 792), and that can be accomplished through the employment of active, engaging, and problem-based learning activities. Additionally, Reeve (2013) notes that choosing the right questioning techniques is pivotal in the case of the Flipped Classroom approach, as only challenging higher order questions could lead to group level discussions where ***“students had the opportunity to explain, justify and rationalize with others in the classroom”*** (Chin, 2007, cited in Jamaludin & Osman, 2014 p. 126). Furthermore, shifting teachers role from a lecturer to a guide and a facilitator, helping teachers make effective use of students' data outside the classroom to direct in-class instruction, and introducing them to more effective methods of continuous evaluation and assessment are also amongst the most important facets that need to be covered by the pedagogical training (Moskal, et al., 2013).

Then, as the needed training is provided, teachers should be encouraged to apply the approach with a limited number of lessons and test it with their students. At this trial stage in particular, it is of a paramount importance to take teachers and students' remarks and feedback into consideration and see how to adapt aspects that the stakeholders find unsuitable or

problematic (Almekhlafi and Almeqdadi, 2010). Equally important, during the first weeks, teachers should be accompanied and supported to ensure successful application of the approach, as this will boost their self-confidence, sense of security, satisfaction, and limit chances for change resistance (Sankey & Hunt, 2013). Similarly, helping teachers recognize the positive impact the approach has on their students' learning through surveys and analysis of students' results is imperative, as nothing motivates a teacher more than observing their students successfully achieving their learning objectives. Moskal, et al., (2013, p. 18) suggest establishing ***“connection between innovative teaching practices and faculty qualification for tenure or promotion”*** to give teachers a goal to aspire to and reward their efforts and devotion to the innovation diffusion project. The committee may also consider reducing faculty's workload (Dziuban, et al., 2011, cited in *ibid.*) and that through cutting in-class instruction time by up to 30% given that teachers devote this free time to training and material development. On the other hand, in order to encourage students to engage more actively during classroom time and accomplish tasks that teachers assign, there is a need for changing the testing and evaluation systems so that they prioritize continuous evaluation over summative one, and valorize the work that students accomplish while being engaged in various learning activities in and outside the classroom. Sankey & Hunt (2013) also note that a successful strategy to ensure students active engagement is to ***“manage students' expectations by focusing on learning outcomes and by establishing the relevance of the course to students' professional lives, particularly through authentic learning activities and assignments”*** (p. 793). By the same token, Reeves and Reeves (2012, p. 117) assert ***“it is much more effective to engage students in tasks that reflect the ways their knowledge, skills, attitudes and intentions will be applied in the real world”***. This link between the learned skills and future careers' requirements is guaranteed under constructivist methodology that capitalizes on real life tasks and activities. Meanwhile, the change process should also emphasize educating the students about the imposed approach and promoting autonomy and agency among learners to help alter the current culture of 'passive recipient of content' and rote memorization (Sankey & Hunt, 2013). In this regard, Pring (2012, cited in Siegle, 2014, p. 52) stresses that

“In a flipped classroom the student takes responsibility for [his or her] own learning and is an engaged and active participant in the learning process. Students often take ownership of the course material and move from passive listeners to active learners”.

As instructional and learning practices are institutional traditions that get passed from one generation to its successor, the culture of active learning under the Flipped Classroom should

replace the current traditional methods and claim the status of the new norm after a given period of time. A case in point is the university of Southern Queensland, a pioneering institution that could successfully apply Flipped Classroom across all its faculties and reach a stage where the Flipped Classroom is the only mode of teaching that students there have ever experienced (Sankey & Hunt, 2013).

Simultaneously, in order to ensure the continuation and smooth running of CALL introduction process, assist teachers and students as they engage in the approach, and better deal with problems as they rise, it is of a paramount importance to create a specialized team that takes care of technical as well as pedagogical issues and seek ways to improve the approach based on teachers' and students feedback. Associate Professor Karen Noble (cited in Sankey & Hunt, 2013), a member of a team that could successfully apply the Flipped Classroom approach across 148 courses at the faculty of education at university of Southern Queensland, emphasizes the need for creating a *“Learning Innovation and Technology Enhancement (LITE) team”* to support and accompany the process of change and help teachers and students overcome different pedagogical, logistic, and technical obstacles. Such a team might entail *“learning and teaching designers, technology experts, librarians, and multimedia developers”* (ibid., p. 792). Creating such a team can be achieved through one of the following approaches, *“create a new blended learning support unit that is appropriately resourced, expand an existing unit to fill out the range of required skills, or merge existing units and fill in where needed”* (Moskal, et al., 2013, p. 17). The LITE team should function as the intermediary that coordinates between all the involved parties and *“prepare faculty, develop courses, manage the infrastructure, support online students and teachers, and carry out the myriad other functions that are needed to attain success”* (Moskal, et al., 2013, p. 17). Equally important, continuous assessment and evaluation of the approach must be one of the top priorities of the LITE team as they should aim at putting in place *“structures for central, longitudinal data collection for purposes of tracking and assessment. These should include both formative and summative data, and should include both quantitative and qualitative factors”* (ibid., p. 18). Continuous assessment and evaluation is to be carried through large scale surveys and field observations that include all the stakeholders and aim at comparing the outcomes of the approach against those of previously applied traditional methods at a number of levels, including students' performance, learning effectiveness (engagement, mastery, autonomy, agency, and attendance rates), faculty satisfaction, students' satisfaction, and cost effectiveness (Wong, et al., 2014). Though these are the main criteria for evaluating a blended learning project, still there are a number of more detailed rubrics developed by a

number of pioneering universities including CELT rubric, ELI rubric, NMIT rubric, and EIT rubric to name some (Smythe, 2011). It is also up to the LITE team to decide on what LMS to use, as finding the LMS that entails the features and functions that best accommodate teachers and students' needs and objectives is of a paramount importance. There is a wide variety of free LMSs to choose from, which represent a safe choice to go with at the beginning of the introduction plan. However, considering a collaboration with computing faculty to develop an LMS specifically designed for our department in accordance to our faculty and students' feedback and recommendations should guarantee a more effective and convenient online learning experience as well as control over a number of technical aspects such as making the LMS mobile friendly, ensuring a user-friendly interface, and avoiding uncontrollable glitches and break-downs. Moreover, as students and faculty may access the online course at any time of the day, they need a permanent technical support that can answer any question they may have or help them overcome issues they may face, including *“a password reset, a question about a feature of the course management system, or deeper subjects such as course content or an assignment”* (Moskal, et al., 2013, p. 17). Taking a number of forms including *“live telephone support, voice mail with call-back, email, instant messaging, informational Websites containing documentation or tutorial videos, or walk-in centers”* (ibid.), the department can either provide this support on its own by designating specialized individuals or outsourcing the service to an external third party (ibid.). Furthermore, by this stage the administration should also consider opening a computer room and equipping it with permanent internet connection for students to access lessons posted by their teachers, especially underprivileged students who do not have access to internet, computers, and other technological devices at their homes. Another possible solution to limit ICT access problem and render the online learning experience more comfortable is by posting video lessons and other learning content on a mobile friendly LMS, as a significant number of students own smartphones through which they can access internet connection either through Wi-Fi at the faculty or through 3G/4G internet connection networks.

Finally, once teachers and students have applied the approach successfully, all the technical, logistic, and pedagogical issues are figured out and dealt with effectively, a common definition and a way of application of the Flipped Classroom is shared by all the stakeholders, and enough evidence is put in place to prove the superiority of the Flipped Classroom over traditional methods, it would be time to move on to the last stage of innovation introduction process. This stage is known as confirmation phase, where the adoption of the approach is made mandatory by the administration, and teachers are expected to apply the approach at a regular

basis, as CALL normalization necessitates the integration of ICTs into the curriculum in a manner that ensures their regular use by teachers and students alike (Chambers & Bax, 2006). Furthermore, teachers should be encouraged to experiment with the approach and see how it can be improved, to increase their sense of ownership of the change process and limit chances for resistance. Additionally, all the involved parties and individuals must be mindful of the fact that the introduction of the Flipped Classroom approach may take a number of years as it is a gradual process, so as to allow the institution as a whole to find its proper version of the model and tailor it in accordance to its needs and capabilities, and permit teachers and students to digest the idea as a whole and adjust themselves to the new situation. In this regard, Eleanor Kiernan, a successful Flipped Classroom project leader at the Faculty of Arts at university of Southern Queensland, accentuates gradation in introducing and applying the Flipped Classroom as she confirms that the “... *course has progressed over the years ... ‘Rome was not built in a day’ and that it actually took a few years to build this course up to a point of its current sophistication*” (Sankey & Hunt, 2013, p. 791). On the same vein, Moskal, et al. (2013) goes on asserting the facts that blended learning incorporation is not an overnight matter and that institutions should aim at finding their own model, as he confirms that “*There is no “one size fits all” approach that is guaranteed to succeed, nor does success come quickly, but rather is achieved through continuous effort over a span of several years*” (p. 2). Successful sustainability of the Flipped Classroom approach also requires the establishment of a practice community where “*early adopters and mentor colleagues could model/demonstrate specific techniques and strategies that have worked for them in their flipped classroom.*” (ibid.), such a community should foster teachers’ independence from institutional assistance on the long run and ensure the courses’ continuous maintenance (ibid.). Such a collaboration should also help create an environment where mutual support is provided (Ertmer and Otterbreit-Leftwich, 2010, cited in Ilomäki, 2008) and the burden of creating lessons content and activities is shared (Ilomäki, 2008).

All the above listed steps are based on sound documented researches that have been discussed earlier. As it progresses through different stages, the proposed plan aims at introducing CALL in a gradual manner that takes into consideration our department’s limitations and aims at overcoming the issues identified throughout the current research. The implementation plan unfolds through different stages that start with putting in place a committee that prepares organizational, statutory, and financial grounds for the innovative project, before moving to the conduction of pilot studies that aim at testing the Flipped Classroom approach in our context amid presenting it to the academic community at the level

of the department. Once the approach is proven successful, applicable in our context, and all potential technical, logistic, and pedagogical issues are identified and dealt with, the next step is to present the approach and the findings of the pilot studies to the stakeholders through mass gatherings, where the main aims are to introducing teachers, students, and administrators to the Flipped Classroom approach, convincing them of the worthwhile of adopting it, and informing them about the upcoming incorporation project. What comes next is providing teachers with a comprehensive training that covers pedagogical and technical aspects of the approach and preparing them to operate effectively in a technology-enhanced environment. Once teachers are well prepared, the administration is to encourage them to implement the approach with their students at a limited basis, in the meantime it is necessary to create a “Learning Innovation and Technology Enhancement team” (LITE) that provides teachers and students with technical and pedagogical support during this decisive trial stage and ensures successful application of the approach. Other measures that are essential for the success of CALL introduction at the level of our department are putting in place an online support service, providing the department with permanent internet connection, opening a computer room for students and teachers to access while on campus, and using a mobile friendly LMS. Once a clear definition of the approach and its application are shared by all stakeholders and all thwarting technical, logistic, and pedagogical hurdles are identified and dealt with, the last stage of the plan is confirmation phase where the Flipped Classroom is made mandatory by the administration and identified as the main mode of instruction at the level of English language department.

4.8 Conclusion

The current chapter is an endeavour to bring together the theory discussed in the review of literature with the findings of data analysis chapter in order to put forward a set of informed solutions that should help integrate educational technologies into the practices of teachers and students at the level of our department. The researcher starts by emphasizing the need for equipping the department with basic ICT equipment in the image of a sufficient number data projectors and permanent internet connection, in addition to a better management of the existing facilities, particularly the closed computer room. The present chapter also calls for the provision a thorough ICT training for teachers, where the faculty receives basic ICT training along with an advanced pedagogical one under the form of professional development programmes to help them incorporate CALL effectively into their practices. Equally important, introducing a subject of CALL for master students that coordinates with the existent computing subject is

also a move that should familiarize our students with the concept of CALL and provide them with needed skills to employ educational technologies for learning purposes and in their future careers. Similarly, establishing an effective communication policy that helps all the stakeholders at the level of our faculty discover this obscure territory of educational technologies through seminars, workshops, and conferences is also among the recommendations that should clarify misconceptions of the academic community and improve attitudes held towards CALL. Furthermore, the researcher suggests the introduction of the Flipped Classroom approach given that this blended learning model, despite its proven effectiveness and positive impact on students and teachers alike, is applicable under the current financial and logistic limitations that the faculty is currently facing. Finally, the researcher deems it essential to assemble all the proposed recommendations under one comprehensive action plan that is based on experiences of a number of pioneering educational institutions and informed by sound documented research.

GENERAL CONCLUSION

Struggling to meet the global standards and rise to the level of students' expectations, Algerian higher education and scientific research arena went through a number of reforms mainly led by the ministry in charge of this vital sector. One common feature that characterizes all the endeavours taken by this latter is its undeniable desire to modernize the sector. As teaching and learning at tertiary level are still, to a large extent, stuck in 'talk and chalk era' where teachers spend class time lecturing with students passively sitting in their places taking notes, technology still could not find its proper place at Algerian universities. In the best-case scenario, basic forms of ICTs in the image of data projectors are peripherally used in uniformed manner that has little impact on students' attainment and engagement, and limits the real effect that these technologies might have. The reasons educational technologies are still alienated at Algerian universities in general and EFL classroom in particular remain unearthed, as no real endeavour has been taken to investigate them properly. Therefore, this humble work is a step on this path as it aspires to shed the light on the state of CALL in Algerian education, explore attitudes of all involved stakeholders towards CALL at English language department at Djilali Liabes University, investigate hindrances impeding CALL normalization at the level of the same department, and finally put forward a set of suggestions in regards to facilitating educational technologies integration.

The current work unfolds through four different chapters. First, situational study and research methodology chapter encompasses two sections. First section attempts to shed the light on the state of CALL in Algerian educational scene and tackles the endeavours taken in this regard as well as issues that face it. Second section outlines the overall structure of the undertaken study through highlighting the research design and employed methods, addressing the used tools, and referring to the population that the researcher investigated. Second, review of literature chapter that encompasses four different sections, each of which discusses one of the main aspects upon which the present thesis is premised. The first section tackles CALL in the broader sense, as it covers the major aspects that surround educational technologies and their use in EFL classroom. This section is intended to introduce readers to the concept of CALL and provide them with the necessary background knowledge to follow the study as it develops. However, it should be pointed out that the concept of CALL is so vast and ever changing that covering all the surrounding aspects is way beyond the scope of the current study; therefore, the researcher focuses on the facets that he deems directly related to the present work and the

ultimate objectives of the study. The second section addresses attitude and its different components and functions in a way that informs the investigation of this aspect and the ensuing discussion of the findings. Then, the third section tackles the concept of change resistance, as it is a major facet of the present thesis and shedding the light on it informs some major recommendations and suggestions made at the fourth chapter. Similarly, the concept of normalization, which represents the fourth section, is introduced to the reader for its importance as a key concept in the present research, and highlighting it should help directing the investigation in the right way through putting forward informed suggestions.

Third chapter is data analysis and discussion that exhibits the findings and results of the investigation in detail, as the researcher attempts to interpret the raw data, translate figures and percentages into plain English, and help readers make sense of them. The third chapter also provides an in-depth discussion of the findings and links them in an attempt to draw valid conclusions and answer previously raised research questions. Meanwhile, the fourth and last chapter is implications and recommendations chapter, where the researcher draws on literature addressed in the second chapter and conclusions reached in the third chapter to put forward a set of informed recommendations and suggestions intended to help overcome the problem of ICT absence at the level of English department and pave the way for the integration of CALL in a manner that ultimately leads to its normalization.

The current work is premised upon four research questions that aim at 1) finding out about the current state of CALL in Algerian educational scene, 2) mapping out teachers and students' attitudes towards CALL at English language department at Djilali Liabes university, 3) pinpointing the issues that hinder CALL normalization at the level of the same department, and finally 4) putting forward a set of solutions to overcome those hindrances and normalize educational technologies at the level of English language department. In regards of these research questions, the researcher hypothesized that 1) CALL is to a large extent still absent from Algerian EFL classroom, 2) teachers' attitudes towards CALL could be less positive than those of students, 3) CALL might be hindered by financial and logistic problems as well as the lack of teacher ICT training, and 4) that CALL could be normalized through providing the needed teacher training and technological facilities.

The investigation carried out throughout this research led to a number of findings at different level. First, analysis of multiple sources of literature about ICTs in Algerian education led to uncovering a number of facts regarding the efforts made to integrate educational

technologies and reasons that led to their failure. Though the successive ministers of National Education and Higher Education and Scientific Research have been emphasizing the importance of incorporating ICTs in the Algerian classroom since 2002, little change and much less success have been made on the ground. Promises and resolutions made by officials in this regard remained ink on paper, whereas most of the initiated projects never went past trial stage despite their admitted success. These failures stem from a number of reasons, most prominent of which are the lack of realistic long-term strategies and the absence of well-defined action plans. In addition, fundamental problems like the need for cogent training and specialized ICT teachers were dealt with through temporary solutions and tinkering measures. Furthermore, another major reason is the direct association between projects and people standing behind them, thus a number of initiatives were called off once the individuals standing behind them stepped down.

Additionally, there is a serious lack of a communication policy, the fact that resulted in keeping most initiatives in the dark unheard of by academic communities. Besides, the major projects and important facilities are located at the major coastal cities, especially the capital, whereas internal and remote cities are marginalized in this regard. Furthermore, though the government took major steps by allotting important sums of money to equip a considerable number of educational institutions with computer laboratories, their efforts fell short as they skimmed on providing rigorous training programs and hiring specialists in the field of computing to teach the subject, the fact that takes us back to the problems of poor application of plans and resorting to temporarily tinkering measures instead of cogent long-term solutions. Another major issue, mainly found at tertiary level, is that of disregarding ministry's recommendations to encourage CALL use and integration, as complying with such resolutions is to a large extent subjected to personal discretions of individuals in charge of different universities. Meanwhile, the most fundamental mistake that characterizes all the taken endeavours is projects managers' inability to learn from previously committed mistakes and their tendency to reinvent the wheel all over again, the fact that eventually leads them to face the same negative results.

Second, one of the overarching aims of the present work is investigating stakeholders' attitudes towards CALL, mainly those of teachers and students at the level of English language department. Teachers' attitude towards CALL turned out to be clearly positive across all the three domains with a combined overall mean score of 4.29. This positive attitude is reinforced

with a number of other factors that indicate the likelihood of future CALL adoption among teachers if circumstances are favourable. Besides regularity of ICT use at personal level and having basic ICT literacy, teachers at the level of our department demonstrated a positive perception CALL usefulness, ease of use, and social influence. At the other end of the spectrum, students' attitude towards CALL is a reserved positive one. Though their affective attitude is a clearly positive, their cognitive and behavioural domains remained slightly under the desired 4 points mean score. Nevertheless, a combined overall mean score of 4.02 put alongside other promising indicators like regularity of ICT use among the majority of students and their prior experiences with educational technologies can be capitalized on to improve students' attitudes and facilitate CALL adoption. Meanwhile, students' perception of CALL usefulness is clearly positive, though their impression of CALL ease of use remained slightly under the benchmark of 4 points mean score.

Third, the analyses of data gathered through different tools resulted in highlighting a number of issues deemed to be the main causes that impede CALL normalization at the level of English department. The underlined issues can be categorized in terms of external factors and internal factors. As far as external factors are concerned, financial problems and tight budget of the faculty are amongst the main issues that hinder CALL incorporation as other urgent fundamental problems make the top of the to-do-list turning by that ICT into a leisure that can be put off for a later stage. The fact that leads us to another directly related problem, which is the stark absence of ICT equipment and facilities even the most basic ones, as the entire department of English language possess only one data projector in use. Lack of ICT equipment and facilities is exacerbated by poor management, as there are an unused computer room and a language laboratory left at the old location of the faculty, both of which are left unexploited for no apparent reasons. More importantly, the administration plays a major role in perpetuating ICT absence, and that is evident in their unsupportiveness and absence of will to integrate ICT in the future, in addition to completely giving up their role in providing teachers with the needed ICT training.

The aforementioned external factors affect all stakeholders and especially teachers leading to, or at least exacerbating, a range of internal problems, most important of which are the limited and in some cases erroneous perceptions held towards what constitutes CALL, how it can be incorporated, and how it would affect teachers and students' practices. The fact that influences the attitudes of some teachers and students negatively, especially their cognitive

domain of attitude, and leads to enrooting and perpetuating change resistance amongst them. All the above listed factors, be they external or internal, put together contribute to the creation of an environment that is at best uncondusive and discouraging to CALL incorporation, as an ICT strategy is inexistent, administrative will and support are completely absent, teachers lack initiative and needed knowledge and capacities to make a difference, and students are over-reliant on their teachers and lack autonomy.

As far as the first hypothesis is concerned, the results of the investigation confirmed that Algerian educational scene is lagging far behind in terms of integrating modern technologies, as ICTs are still alienated and efforts taken by the responsible ministries to alter the situation are hampered by a number of problems and avoidable rooky mistakes. Meanwhile, unlike what the researcher expected, teachers turned out to have a more positive attitude than students do, and that includes their likelihood to adopt CALL. Whereas for the third hypothesis, the problems that impede CALL normalization at the level of our department go far beyond tight budget, lack of ICT facilities, and absence of training, as the biggest hurdle is the mentalities of stakeholders at all levels, mentality of administrators who see no added value in introducing CALL, mentality of teachers who are afraid of the unknown and lack initiative, and the mentality of students whose passivity, overreliance on teachers, and reluctance make them see CALL as unnecessary additional burden that can only translate into more workload for them. Whereas, providing the needed ICT equipment and technical training to teachers can never be enough, as introducing CALL cannot be effective and achieve the desired positive impact unless major changes are made at the level of teaching methods, stakeholders' roles, and most importantly current mindsets and attitudes.

Therefore, introducing CALL and normalizing it is a long-term process that necessitates the direct involvement of all stakeholders and taking a number of measures at different levels. First, the administration should seriously consider providing basic ICT equipment in the image of a sufficient number of data projectors and permanent internet connection. The faculty should also promote its website by activating the virtual library and enabling the provision of online lectures. Another move that is worth taking is making the closed computer room accessible to teachers and students so that they benefit from it, especially in learning the basic skills. Second, as providing ICT equipment cannot result in their automatic employment, teachers should be provided with an effective training that combines the technical and pedagogical aspects, to ensure effective and informed use of educational technologies. The training should take the

form of a continuous professional development programme, as short periodic training sessions are not as holistic and effective. Third, the training should also cover students, as introducing CALL as a subject is an effective means to getting them acquainted with different applications of educational technologies and familiarizing them with practical models that they could use in their learning pursuit and employ them later on in their professional careers especially teaching. Such a move should also help break the vicious cycle of CALL avoidance among future generations of teachers. Fourth, as CALL is to a large extent an unexplored and obscure territory to the academic community at the level of our department, introducing CALL to all stakeholders through collective gatherings with the presence of CALL practitioners and experts should alleviate the problem of ICT avoidance, boost stakeholders' positive attitudes and evaluative beliefs, and encourage them to try CALL in their classrooms.

Fifth, taking into account the nature of all the issues that hamper CALL incorporation at the level of English department, the researcher suggests the adoption of a blended learning model known as the Flipped Classroom approach. This approach in particular is chosen for a number of considerations, most important of which is its advantageousness over the currently used traditional methods. Similarly, besides the fact that it operates on basic ICT tools that do not require significant financial involvement from the administration, the Flipped Classroom approach is easy to plan, train teachers on, and apply. Pedagogically speaking, the Flipped Classroom approach has been proven to affect teaching and learning practices positively as it limits passive lecturing and encourages active and individualized learning. Besides boosting student engagement, increasing collaborative learning, improving academic attainment, allowing more time for feedback provision, and raising attendance rates, it also positively affects attitudinal and behavioural conduct of students. The Flipped Classroom, which can be tested at a limited basis before final adoption, is an optimum choice to go with because of its flexibility and compatibility with teachers and students' regular practices.

Meanwhile, any CALL adoption project should follow a scheme that ensures its systematic introduction and limits the chances for possible thwarting factors, especially negative attitudes, change resistance, lack of support, and absence of regulatory texts. Therefore, the researcher suggests putting all the aforementioned solutions under one action plan that ensures solving the problem of CALL absence in a systematic and informed manner. Incorporating CALL into English language department starts with putting in a place a committee that takes charge of supervising the implementation of the plan and carrying out a

number of pivotal tasks, most important of which are deciding on the objectives of the innovation incorporation project, generating funding resources, and adapting institutional policies so that they go in line with introduced change. The second step is to conduct pilot studies where the Flipped Classroom approach is tested at a limited basis to ensure its applicability in our context and pinpoint any shortcomings that need amendment before introducing the approach to the academic community. Once the approach is applied successfully, the next step is the organization of gatherings, be they conferences, seminars, or study days, to introduce the approach to the stakeholders and inform them about its different aspects and how it would be applied at the level of the department. It is imperative for these gatherings to aim at convincing the stakeholders of the worthwhile of taking such a move and open the debate to address any questions and concerns.

Once the idea of adopting the Flipped Classroom is accepted by the academic community at the level of our department, teachers should receive a thorough training on how to apply the Flipped Classroom approach. Such a training can be presented under the form of a continuous professional development programme that covers technical and pedagogical aspects of the Flipped Classroom, and clarifies pedagogical premises that underpin them. After receiving the needed training, the teachers are to be encouraged to apply the approach at a limited basis with their students. At the same time, it is necessary to create a “Learning Innovation and Technology Enhancement” (LITE) team to support teachers and students during the trial stage and help them solve technical and pedagogical problems as they occur. The LITE team is also to be in charge of assisting teachers in preparing lectures, managing infrastructure, and continuously evaluating and enhancing the approach. Additionally, to smoothen teachers and students’ online experience and better deal with problems they face while away from the campus, it is of a paramount importance to put in action an online support service. Other steps worth taking are opening a computer room with internet connection for teachers and students, equipping the department with an accessible Wi-Fi internet connection, and using a mobile friendly LMS. The researcher also suggests the establishment of a practice community where teachers who are experienced with the Flipped Classroom mentor and train the new comers and exchange successful practices. Once the all these steps are accomplished with success, the final step is confirmation stage, where the approach is made mandatory by the administration and established as the main method of instruction at the level of English language department.

The current work has been a real journey of change that altered the researcher's original views and enlightened his mind about several aspects. As any other naïve student at the onset of a research project, the researcher found himself under the awe factor of CALL, seeing in educational technologies the silver bullet that would single handedly solve every single problem at the level of our educational scene, and even eliminate the need for teachers. However, as the investigation progressed and more specialized literature was covered, the researcher came to realize that CALL is, like any other tool, purely instrumental, and it is useless unless it is embedded in a cogent methodology. CALL is most useful when it is employed to accomplish a set of well-defined tasks where technology actually outperforms teachers and enables carrying tasks that are impossible to accomplish otherwise. CALL must be introduced in a way that enables personalizing students learning experience, providing more opportunities for active learning, and promoting students' agency, autonomy and mastery based learning. These aspects can only be present under a blended learning environment where technology is used to maximize the impact of teachers' presence and expand learning environment beyond time and space boundaries of "brick and mortar" traditional classroom. The researcher also discovered that issues that hamper CALL normalization at the level of our department go beyond technical aspects, as mindsets and erroneous beliefs are the most single hindering factor. Therefore, altering the current situation requires changing attitudes, correcting misbeliefs, and practically establishing a new culture and way of thinking amongst our academic community.

The present thesis is a step on the path of introducing CALL at the level of English language department of Djilali Liabes University, and normalizing educational technologies in our EFL classroom. It explores an obscure area, as the reasons lying behind CALL absence at the level of our department have not been thoroughly investigated before. Therefore, one of the main objectives of the present investigation is to pinpoint all the possible hurdles. Furthermore, instead of focusing on one aspect, the study is based on a more holistic investigation approach that goes beyond the technical aspect to cover pedagogical and psychological ones as well. All this to lay out a set of solutions that cover all the hindering factors. Furthermore, rather than suggesting a number of fragmented recommendations, the researcher sought to combine the suggested solutions under one comprehensive scheme that should ensure smooth and systematic introduction of CALL and limit the chances for possible thwarting factors such as change resistance and negative attitudes. Additionally, the researcher deems it necessary to introduce CALL through an approach that embeds accessible technologies into a cogent methodology to provide both teachers and students with a fruitful teaching and learning experience. Similarly,

besides focusing on the pedagogical and technical aspects, the proposed plan also places a considerable importance on stakeholders' attitudes and mindset, as more than any other single factor, CALL introduction at the level of English department is hampered by no-need mentalities and erroneous beliefs.

On the light of the findings of the current work, it is possible to suggest some directions for future research in the field of CALL and blended learning at the level of English language department. First, future researchers are invited to conduct pilot studies where the Flipped Classroom approach is tested at the level of our department. The studies should be conducted with different class sizes and across different subjects to examine a number of areas including the applicability of the approach, students' reaction to it, technical and pedagogical issues that might face teachers, possibility of employing mastery-based learning techniques, and most importantly how the approach affects students' academic attainment, agency, autonomy, engagement in and outside the class, and their attendance rates. Second, it is worthwhile to cooperate with web designers from the faculty of computing to develop LMSs and online platforms to host learning materials of English language department and accommodate our teachers and students' special needs. Third, testing different forms of teacher-student CMC tools for the outside-of-classroom phase of the Flipped Classroom approach is also a pivotal aspect for the success of the approach, and that includes examining and comparing the effectiveness of synchronous messaging, asynchronous messaging, discussion boards, and the use of social media; it is also important to investigate whether CMC tools are to be embedded into the LMS or be kept on a separate platform. Fourth, one more aspect that needs a significant attention is the development a repertoire of classroom activities that promote constructive teaching and that are based on higher order thinking skills, cooperative learning, collaborative learning, peer-assisted learning, experiential learning, problem based learning, project based learning, and task based learning.

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Appendix Number One: Teachers' Questionnaire

Teachers' Questionnaire

Dear teachers,

You are kindly invited to fill in the following questionnaire. Please, tick the appropriate answer and justify it whenever it is possible. We extremely appreciate your collaboration.

SECTION ONE: Background Information

Please tick () the appropriate choices and provide the necessary information below.

1. Age:

2. Gender: Male Female

3. Years of teaching experience: 1-5 years 6-10 11-15 15+

4. The module(s) that you teach:

5. Please, identify how often you have computer access in the following contexts by circling the corresponding number:

<i>Items</i>	<i>Daily</i>	<i>5 – 2 a week</i>	<i>Once a week</i>	<i>Rarely</i>	<i>Never</i>
1. In your home	1	2	3	4	5
2. At University (computer lab or library)	1	2	3	4	5
3. Other (like Internet cafes, etc.)	1	2	3	4	5

6. Have you received training on how to integrate ICT into your EFL teaching?

Yes. No. No, I learnt by myself

7. If yes, what type of training have you received?

a) Basic computer literacy (on/off operations, how to run programs...)

b) Computer applications (word processing, Excel, spreadsheets...)

c) Computer integration (how to use computers in classrooms)

d) Other, specify please:

8. Where did you receive your training?

a) Self-taught b) college or university c) A specialized school

Other, specify please:

9. Have you ever used ICT in your teaching? Yes No (if no go to question 15 please)

10. If your answer was YES, what type of software and/or hardware have you used?

Specify please:

11. What did you use the ICT for?

- a) Material presentation b) Practice c) Assessment

Other, specify please:

12. Where have you used / do you use ICT with your EFL students?

- a) In a computer Laboratory b) in a classroom c) Via internet

Other, specify please:

13. Do you think using ICT helped your students? Yes No

Please, explain how they did or how they did not help:

14. If you have not used ICT in your EFL teaching, why haven't you used them?

- a) I don't have access to computer and ICT facilities
- b) I don't think ICT would teach my students more effectively
- c) I don't feel comfortable using ICT
- d) I would first want to see the results from other teachers using ICT
- e) I don't have enough time for preparing teaching material
- f) I don't know how to integrate ICT in my EFL teaching
- g) Other, specify please:

15. What would make you more likely to use ICT in your EFL teaching?

- a) Increased accessibility to ICT facilities
- b) Increased training
- c) Increased time for teaching material preparation
- d) pedagogical support
- e) Increased technical support
- f) More advanced facilities
- g) Other, specify please:

h) Nothing because

SECTION TWO:

Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (Strongly agree) to 5 (Strongly disagree).

<i>Items</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1. Computers do not scare me at all	1	2	3	4	5
2. Computers make me feel uncomfortable	1	2	3	4	5
3. I am glad there are more computers these days	1	2	3	4	5
4. I do not like talking with others about computers	1	2	3	4	5
5. Using computers is enjoyable	1	2	3	4	5
6. I dislike using computers in teaching	1	2	3	4	5
7. Computers save time and effort	1	2	3	4	5
8. Schools would be a better place without computers	1	2	3	4	5
9. Students must use computers in all modules	1	2	3	4	5
10. Learning about computers is a waste of time	1	2	3	4	5
11. Computers would motivate students to do more study	1	2	3	4	5
12. Computers are a fast and efficient means of getting information	1	2	3	4	5
13. I do not think I would ever need a computer in my classroom	1	2	3	4	5
14. Computers can enhance students' learning	1	2	3	4	5
15. Computers do more harm than good	1	2	3	4	5
16. I would rather do things by hand than with a computer	1	2	3	4	5
17. If I had the money, I would buy a ICT teaching tools and materials	1	2	3	4	5
18. I would avoid computers as much as possible	1	2	3	4	5
19. I would like to learn more about computers	1	2	3	4	5
20. I have no intention to use computers in the near future	1	2	3	4	5

SECTION THREE:

Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (Strongly agree) to 5 (Strongly disagree).

<i>Items</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1. Computers will improve education	1	2	3	4	5
2. Teaching with computers offers real advantages over traditional methods of instruction	1	2	3	4	5
3. Computer technology cannot improve the quality of students' learning	1	2	3	4	5
4. Using computer technology in the classroom would make the subject matter more interesting	1	2	3	4	5
5. Computers are not useful for language learning	1	2	3	4	5
6. Computers have no place in schools	1	2	3	4	5
7. Computer use fits well into my curriculum goals	1	2	3	4	5
8. Class time is too limited for computer use	1	2	3	4	5
9. Computer use suits my students' learning preferences and their level of computer knowledge	1	2	3	4	5
10. Computer use is appropriate for many language-learning activities	1	2	3	4	5
11. It would be hard for me to learn to use the computer in teaching	1	2	3	4	5
12. I have no difficulty in understanding the basic functions of computers	1	2	3	4	5
13. Computers complicate my task in the classroom	1	2	3	4	5
14. Everyone can easily learn to operate a computer	1	2	3	4	5
15. I have never seen computers at work	1	2	3	4	5
16. Computers have proved to be effective learning tools worldwide	1	2	3	4	5
17. I have never seen computers being used as an educational tool	1	2	3	4	5
18. I have seen some Algerian teachers use computers for educational purposes	1	2	3	4	5

Please, go to next page.

SECTION FOUR:

Please indicate your current computer competence level (i.e., both your knowledge and skill in using computers) regarding each of the following statements. Make sure you respond to every statement by circling the number to the right of each statement.

<i>Items</i>	No competence	Little competence	Moderate competence	Much competete
1. Install new software on a computer	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
2. Use a printer	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
3. Use a computer keyboard	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
4. Operate a word processing program (e.g., Word)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
5. Operate a spreadsheet program (e.g., Excel)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
6. Operate a database program (e.g., Access)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
7. Use the Internet for communication (e.g., email & chat room)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
8. Use the World Wide Web to access different types of information	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
9. Use the World Wide Web to look for teaching material	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
10. Use the World Wide Web and ICT to give students further practice at home	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
11. Use ICT for students' assessment	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
12. Solve simple problems in operating computers	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
13. Operate a graphics program (e.g., Photoshop)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
14. Use computers for grade keeping	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
15. Select and evaluate educational software	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
16. Create and organize computer files and folders	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>

Please, go to next page.

SECTION FIVE:

Please indicate the factors you think they impede the normalization of Computer Assisted Language Learning and use of ICT in Algeria. Make sure you respond to every statement by circling the number to the right of each statement.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1. The high cost of equipment.	1	2	3	4	5
2. The time consuming material preparation.	1	2	3	4	5
3. Inadequate and aging equipment and slow internet connection.	1	2	3	4	5
4. Restricted curricula that does not allow the integration of computers in teaching.	1	2	3	4	5
5. The absence of supporting technical staff.	1	2	3	4	5
6. Cultural and social norms and beliefs.	1	2	3	4	5
7. Teachers' computer illiteracy.	1	2	3	4	5
8. Students' computer illiteracy.	1	2	3	4	5
9. The lack of teachers' training on the integration of computers and technology in teaching practice.	1	2	3	4	5
10. Teachers' negative attitude towards computers and technology.	1	2	3	4	5
11. Students' negative attitude towards computers and technology.	1	2	3	4	5
Other (please specify)					
.....					
.....					

You are kindly invited to add any comments you might have concerning the implementation of Computer Assisted Language Learning in Algerian EFL classroom.

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Your email for further questioning if needed:

Thank you again for your cooperation in completing this questionnaire.

Appendix Number Two: Students' Questionnaire

Students' Questionnaire

Dear students,

You are kindly invited to fill in the following questionnaire. Please, tick the appropriate answer and justify it whenever it is possible. We extremely appreciate your collaboration.

SECTION ONE: Background Information

Please tick () the appropriate choices and provide the necessary information below.

1. Age:

2. Gender: Male Female

3. Please, identify how often you have computer access in the following contexts by circling the corresponding number:

<i>Items</i>	<i>Daily</i>	<i>5 – 2 a week</i>	<i>Once a week</i>	<i>Rarely</i>	<i>Never</i>
1. In your home	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
2. At University (computer lab or library)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
3. Other (like Internet cafes, etc.)	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>

4. Have you studied English via any Computer-Assisted Language Learning (CALL) tool before? Yes No

5. If yes, can you name it?

- a) Application on a computer b) Book supplied CD-ROMs c) Internet Sites
 d) Blogs e) Chat

Other: (specify please)

.....

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Please, go to next page.

SECTION TWO:

Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (Strongly agree) to 5 (Strongly disagree).

<i>Items</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1. Computers do not scare me at all	1	2	3	4	5
2. Computers make me feel uncomfortable	1	2	3	4	5
3. I am glad there are more computers these days	1	2	3	4	5
4. I do not like talking with others about computers	1	2	3	4	5
5. Using computers is enjoyable	1	2	3	4	5
6. I dislike using computers in studying	1	2	3	4	5
7. Computers save time and effort	1	2	3	4	5
8. Schools would be a better place without computers	1	2	3	4	5
9. Teachers must use computers in all modules	1	2	3	4	5
10. Learning about computers is a waste of time	1	2	3	4	5
11. Computers would motivate me to do more study	1	2	3	4	5
12. Computers are a fast and efficient means of getting information	1	2	3	4	5
13. I do not think I would ever need a computer in order to learn English language	1	2	3	4	5
14. Computers can enhance my learning	1	2	3	4	5
15. Computers do more harm than good	1	2	3	4	5
16. I would rather do things by hand than with a computer	1	2	3	4	5
17. If I had the money, I would buy a ICT tools and materials to learn English language better	1	2	3	4	5
18. I would avoid computers as much as possible	1	2	3	4	5
19. I would like to learn more about computers	1	2	3	4	5
20. I have no intention to use computers in the near future	1	2	3	4	5

Please, go to next page.

SECTION THREE:

Please read each statement carefully and indicate the extent to which you agree with the following statements. Please mark your response by circling the number to the right of each statement ranging from 1 (Strongly agree) to 5 (Strongly disagree).

<i>Items</i>	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1. Computers will improve education	1	2	3	4	5
2. Learning with computers offers real advantages over traditional methods of instruction	1	2	3	4	5
3. Computer technology cannot improve the quality of my learning	1	2	3	4	5
4. Using computer technology in the classroom would make the subject matter more interesting	1	2	3	4	5
5. Computers are not useful for language learning	1	2	3	4	5
6. Computers have no place in schools	1	2	3	4	5
7. Computer use fits well into curriculum goals	1	2	3	4	5
8. Class time is too limited for computer use	1	2	3	4	5
9. Computer use suits my learning preferences and my level of computer knowledge	1	2	3	4	5
10. Computer use is appropriate for many language-learning activities	1	2	3	4	5
11. It would be hard for me to learn how to use the computer learn English language	1	2	3	4	5
12. I have no difficulty in understanding the basic functions of computers	1	2	3	4	5
13. Computers complicate learning and make difficult	1	2	3	4	5
14. Everyone can easily learn to operate a computer	1	2	3	4	5
15. I have never seen computers in classroom	1	2	3	4	5
16. Computers have proved to be effective learning tools worldwide	1	2	3	4	5
17. I have never seen computers being used as an educational tool	1	2	3	4	5
18. I have seen some Algerian teachers use computers for educational purposes	1	2	3	4	5

Please, go to next page.

SECTION FOUR:

Please indicate your current computer competence level (i.e., both your knowledge and skill in using computers) regarding each of the following statements. Make sure you respond to every statement by circling the number to the right of each statement.

<i>Items</i>	No competence	Little competence	Moderate competence	Much competence
1. Install new software on a computer	1	2	3	4
2. Use a printer	1	2	3	4
3. Use a computer keyboard	1	2	3	4
4. Operate a word processing program (e.g., Word)	1	2	3	4
5. Operate a spreadsheet program (e.g., Excel)	1	2	3	4
6. Operate a database program (e.g., Access)	1	2	3	4
7. Use the Internet for communication (e.g., email & chatroom)	1	2	3	4
8. Use the World Wide Web to access different types of information	1	2	3	4
9. Use the World Wide Web to look for learning material	1	2	3	4
10. Use the World Wide Web and ICT to further practice at home	1	2	3	4
11. Use ICT to my proficiency in English	1	2	3	4
12. Solve simple problems in operating computers	1	2	3	4
13. Operate a graphics program (e.g., Photoshop)	1	2	3	4
14. look for educational software	1	2	3	4
15. Create and organize computer files and folders	1	2	3	4

Please, go to next page.

SECTION FIVE:

Please indicate the factors you think they impede the normalization of Computer Assisted Language Learning and use of ICT in Algeria. Make sure you respond to every statement by circling the number to the right of each statement.

	<i>Strongly agree</i>	<i>Agree</i>	<i>Not sure</i>	<i>Disagree</i>	<i>Strongly disagree</i>
1. The high cost of equipment.	1	2	3	4	5
2. The time consuming material preparation.	1	2	3	4	5
3. Inadequate and aging equipment and slow internet connection.	1	2	3	4	5
4. Restricted curricula that does not allow the integration of computers in teaching.	1	2	3	4	5
5. The absence of supporting technical staff.	1	2	3	4	5
6. Cultural and social norms and beliefs.	1	2	3	4	5
7. Teachers' computer illiteracy.	1	2	3	4	5
8. Students' computer illiteracy.	1	2	3	4	5
9. The lack of teachers' training on the integration of computers and technology in teaching practice.	1	2	3	4	5
10. Teachers' negative attitude towards computers and technology.	1	2	3	4	5
11. Students' negative attitude towards computers and technology.	1	2	3	4	5
Other (please specify)					

You are kindly invited to add any comments you might have concerning the implementation of CALL in Algeria.

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Thank you again for your cooperation in completing this questionnaire.

Appendix Number Three: Teachers' Interview Questions

1. What does the term 'computer-assisted language learning' (CALL) mean to you?
2. How often do use computers and other technological devices?
3. What do you think about the use of computers in the classroom?
4. Have you received training on how to integrate ICT into your EFL teaching?
 - 4.1 If yes, what type of training have you received?
 - 4.2 Where did you receive your training?
5. Have you ever used ICT in your teaching?

5.1 If YES, what type of software and/or hardware have you used?

- 5.1.1 What did you use the ICT for?
- 5.1.2 Where have you used / do you use ICT with your EFL students?
- 5.1.3 Do you think using ICT helped your students? In what ways?

5.2 If No, why haven't you used them?

- 5.2.1 What would make you more likely to use ICT in your EFL teaching?
- 5.2.2 Describe a way that explains how you would use CALL and IT in your classroom.
- 5.2.3 Do you think CALL can contribute to students' language development? If yes, how? If no, why not?

6. What do you think are the advantages of using computers in the classroom?
7. What do you think are the disadvantages of using computers in the classroom?
8. What is students' attitude towards CALL? Is it positive or negative?
9. What are the problems that teachers face when they want to use CALL?
10. What are the solutions that propose overcome these problems?
11. What do you think about the future of CALL in terms of EFL teaching in Algeria?
12. As a teacher, do you feel threatened by advancements in educational technology, or do you welcome it?

Appendix Number Four: Administrators' Interview Questions

1. Have the administration encouraged the incorporation of ICT in EFL instruction? How explain?
2. What facilities have the administration provided? (Do you know that computers room has never been used?)
3. Have you provided teachers with the needed training on how to incorporate ICT? Explain.
4. Why do teachers abstain from using ICT in their practice?
5. What are the obstacles that impede ICT incorporation from taking place in our department?
6. What's needed to be done in order to normalize ICT in EFL classroom?

Appendix Number Five: Teachers' Interviews Scripts

Interview N° 1 (10mns)

Researcher: What comes to your mind when you first hear the expression computer assisted language learning?

Teacher n°1: Yes computer assisted language learning ... err so I think about ... I think about technology ... err development ... and a very good tool for learning .

Researcher: Ok that's good, and how often do you use computers and other technological devices?

Teacher n°1: Ok ... so, all the time ... I use them all the time err ... if one day I don't consult my email or so I ... I feel like something's missing ... so I have to err ... catch up.

Researcher: And what about the use of computers in your classroom?

Teacher n°1: Umm I appreciate a lot this point because even in my thesis I work with ... with err ... how to enter computer in the classroom as interactive err... blackboard ... an interactive mean, yes you know ... I appreciate it a lot ... and I want to apply in the future if I have the possibility to do it.

Researcher: Ok that's very good, and have you received any training on how to integrate ICT in your practice?

Teacher n°1: Not yet but I hope so ... I just watch documentaries about it ... and it is very attractive.

Researcher: But no official training?

Teacher n°1: No ... no official sorry sorry But I hope so If I have time ... err by my own capacity may be I'll do the training ... umm it will be good for me and for the students as well.

Researcher: Ok, and what type of devices and software do you use in your teaching? If you use them of course.

Teacher n°1: No I'm not using yet ... I'm not using because you know ... technology is missing here.

Researcher: Now I want to know about the obstacles that impede you from using ICT in your classroom, ... umm why don't you use it?

Teacher n°1: Sorry to tell you but we don't even have the heat err ... it's very cold ... and technology is so missing this the most important point ... in Algeria nowadays many things are missing so we hope we will ... err may be we will have the chance to have them ... you know And the main problem is the budget.

Researcher: Ah ok ... umm and if you are to use them in your classroom ... err how would you use them?

Teacher n°1: Err ... I will use them right from the beginning ... I will let my books I will use just computer ... err you know I'm not telling you that we are neglecting the books ... no ... but I will urge my students to use computers because ... look everything is available just in our hands ... everything is available ... even ... I'll give you an example, I'm teaching grammar and my students ... err give me sometimes this technology ... tablets like this one here ... they err ... they use them to find many information about tenses for example ... so I'm teaching ... and my students err ... already know what I'm doing ... so it is an additional information source for me ... so I want to tell you ... I will err let my books ... if I will let even my copybooks ... yes I will work with the computer ... and err ... that's all.

Researcher: Ok err ... fair enough ... and do you think that CALL err ... computer assisted language learning can contribute to the development of students?

Teacher n°1: Yes of course ... because we have a huge amount of information and teacher ... you know in an hour an a half ... he's not going to be able to err... to give err ...

Researcher: Cover everything.

Teacher n°1: Yes ... yes give everything ... but if for example we have this interactive blackboard ... with a click the teacher is able to give the students many images, many pictures err ... yes a lot of things may be in twenty minutes or less... so the student is going to err ... to eat information a lot of information ... and of course the teacher is here to just guide the student ... but he's here err ... I'm telling you computer is very important ... but the teacher is important as well because he's going to guide the student.

Researcher: Can you summarize in a number of point the advantages of computer assisted language learning?

Teacher n°1: Ok we have err ... we are not going have a limited time ... you know one hour an half ... may be we are going to cover more content if I have a computer in my classroom ... ok this is the first one err ... student will be very motivated because they are concentrating with you so they don't have the time to talk with each other ... and the teacher is guiding the students as well and make sure they paying attention so err ... we can motivate the students then ... they can have homework ... enough homework according to each student's level ... you know ... sometimes when I write simple exercises on the blackboard err ... students who have high level are not motivated ...

Researcher: They get bored ...

Teacher n°1: Yes, but if I have computers I will choose appropriate exercise for each level ... because in classroom we have week students err .. clever students and so on ... ok.

Researcher: Ok, what about the disadvantages of computer assisted language learning?

Teacher n°1: Disadvantages err ... well I will tell you about one point is that if the teacher is not guiding the students err ... this will be a big disadvantage ... if the teacher is not present ... because some err Some researchers said we can replace the teacher ... for me computers cannot replace the teacher ... this is the big disadvantage.

Researcher: What do you think about the future of computer assisted language learning in Algeria?

Teacher n°1: Yes I will tell you ... and umm I appreciate a lot this technology ... and I'll be Insha' Allah the first one who will encourage this tool because it is err ... very important err ... especially in motivating the students ... because we notice the students are not motivated in the classroom err.so if we talk about classroom discipline we can may be err ... we can avoide umm...we can have a disciplined classroom when we integrate computers.

Researcher: Ok, last question, umm ... as a teacher, you don't feel err ... how to say it ... threatened by this technology replacing you as a teacher?

Teacher n°1: No, no I'm sure it will not replace the teacher ... if I will help the integration of computer so I know err ... I feel that it's not going to replace the teacher ... because the teacher must guide the student.

Researcher: Ok, thanks a lot.

Interview N° 2 (14mns: 51sec)

Researcher: So the interview is about the integration of ICT in the instruction as a foreign language ... first thing, what do you think when you hear the expression computer assisted language learning?

Teacher n°2: Err, ok ... we are talking about CALL as an abbreviation ... it means the integration of computers in language learning but err ... if we go back to the history of CALL we notice that it has different stages or different approaches in order to integrate CALL in language learning ok ... when we say CALL for me personally I think that the purpose of using computers in language learning is not to facilitate teaching itself but to err ... facilitate learning but ... we can notice that many teachers are using CALL to facilitate teaching rather than learning ... CALL is computer assisted language learning err ... some teachers are confused ... but as the name indicates it is for learning ok ... I think that CALL is something very interesting err ... something that teachers should try ok err ... they should use in their classroom because err ... the generation we are teaching is not like the previous generation why err ... because they are living in the err ... e-environment ok ... the world is surrounded by technology so we need to integrate technology and CALL more precisely err ... because when we say technology in general it has different err ... different tools ... so you are interested to know about CALL?

Researcher: CALL yeah, so err ... the next question is about how often do you use computers and other technological devices in your daily life?

Teacher n°2: In my daily life?

Researcher: Yeah.

Teacher n°2: Everyday err ... I'm a kind of a person who uses technology every day, every time and err ... most of the time.

Researcher: What type of technology do you use? err ... Software and hardware both.

Teacher n°2: Err ... computers and err ... smartphones ... sometimes in my classes I use the datashow ... but most of the time I use computers and smartphones which are always there.

Researcher: what do you think about the use of computers in classrooms?

Teacher n°2: I think that using computers in classrooms is something very beneficial err ... something very effective ... something necessary but if err ... it is used in an appropriate way ... if you know how to use it ... the purpose is not to use the computer but err ... how to use it ... when to use it etc.

Researcher: Ok.

Teacher n°2: And not using computers just to say I'm using computers so I'm an innovative teacher.

Researcher: Using it for the sake of using it.

Teacher n°2: that's it.

Researcher: Yeah err ... and have you ever received any training on how to integrate computers in your teaching?

Teacher n°2: Yes I did err ... I received a kind of training err ... during my magister theoretical year err ... at the university of Telemcen, we got the chance to umm ... have sessions on how to use technology, it was very advanced, it was err ... very high level courses and we have benefited from that a great deal.

Researcher: Was it practical or just theoretical?

Teacher n°2: It was err ... both practical and theoretical, we used to have the theoretical part with one teacher and practical side with another teacher who is err ... a good teacher in that field.

Researcher: Was it (training) provided by the university?

Teacher n°2: It was provided by err ... since it was in our magister err ... in our magister program so we had it as a module ... ICT in education as a module so ... we used to err ... go to a special centre of technology at the university of Telemcen.

Researcher: Are you majoring in didactics?

Teacher n°2: No educational technology.

Researcher: Ok, and have you ever used ICT in your teaching?

Teacher n°2: Yes of course.

Researcher: Of course, what type of ICT have you used?

Teacher n°2: Err ok ... because at err ... at our university the only thing available is a computer and a datashow.

Researcher: And for what purpose? Was it material presentation, assessment, content delivery ...

Teacher n°2: Ok err ... it was for err ... delivery of content sometime, ... sometimes for err ... kind of assessment ok and sometimes not for delivery not for assessment, because I'm a specialist in educational psychology and I know that my students have different learning styles so I need to err ... diversify my teaching strategies to attract err ... all the students ... sometimes we need to pay attention to those who are visual learners because they need visual presentation, they need technology etc., ... so I think that to be err ... it is a kind of equity in education ... to have this fairness with your students.

Researcher: ok, do think that it helped them? I mean ICT.

Teacher n°2: Yes it does because I noticed that when I just explain the lecture err ... when I'm just lecturing in the err ... traditional way of giving a lecture, most of the time they are bored, they are not interested but when there is a presentation or there is technology, whether is a PowerPoint presentation, a video, sometimes I bring a video, sometimes debates it depends ... so I see they are attracted at least because there is something new.

Researcher: Can you summarize the advantages of computer assisted language learning in a number of points?

Teacher n°2: The first point is that err ... using technology in the classroom is err ... attractive since our learners are surrounded by technology in their daily lives, so it is their world, so we need to err ... it helps in order to bring err ... to deal with different learning styles, it helps in making learners autonomous because they will have the opportunity to work by themselves and it helps them to be independent from the teacher if they need something they go to the computer for example they look for the information yes err ... it kind of motivate the, it facilitate interaction and communication between them, err ... these are the advantages.

Researcher: And what about the disadvantages?

Teacher n°2: Umm, the disadvantages are err ... using technology for the sake of using technology so the learner ... sometimes the teachers use too much technology err ... there are teachers who use no technology and teachers who use too much technology ... [40 second interruption from students] there are teachers who are using technology for the sake of facilitating teaching ... you know using technology, the first purpose of using technology is not to facilitate teaching but to facilitate learning, so when you are using technology to facilitate your teaching it means you are looking for your benefit not the benefit of the learner ... something else that err ... the use of technology is not always beneficial, there are some learners who cannot manage technology and cannot use technology in an appropriate way ok ... they may be err ... they use it but students are not aware of how to use technology for their benefit, they use it just because it is available etc., but not to benefit from.

Researcher: What about students' attitudes towards technology? What did you notice? Is it positive or negative?

Teacher n°2: Err ... ok, most of the time I think that they pretend that they have a positive attitude but in fact they have a negative attitude, why? ... when you are using ... the teacher is using technology for example a datashow for presentation and he is the one who is presenting they have a positive attitude, why? ... because they will stay on the desk and they will be err ...

Researcher: Passive ...

Teacher n°2: They are passive, but when technology is used and making them the ones who work, the ones who are supposed to do something they have a negative attitude because they are not accustomed with the use of technology and they do not like to be err ...

Researcher: Active ...

Teacher n°2: Active and autonomous etc., they need the teacher to do everything so when technology is err ... a kind of a burden on them they have a negative attitude.

Researcher: Ok, what about the problems that impede you as a teacher from using technology here at the level of university? Hurdles that you face?

Teacher n°2: I think that there are different err ... [1 minute student interruption] when we talk about technology many teachers believe that the most frustrating problem if we can say is the non availability of technology at the level of university but I don't think this is the only problem,

why? ... because if it is a matter of availability we can bring technology but I think that the problem is at institutional level, we have institutional problems because err ... the institution as a whole cannot provide you with the good conditions for using technology ... at the level of the classroom itself we do not have those autonomous learners who can use technology in the appropriate way ok ... they are not autonomous, they rely on the teacher etc., and teachers themselves are not trained, are not educated on the right ways umm ... to implement or to integrate technology in the classroom, why? ... because they think using technology is a matter of bringing a computer, a datashow and making a presentation, this is technology for them but in fact integrating technology is something err ... it is a wide topic, it has err ... generated debate and research among practitioners and researchers and it is a kind of err ... it is not that err ...

Researcher: Simplistic ...

Teacher n°2: Yes, to say that integrating technology is a matter of bringing a computer etc., this is not integrating ICTs, in order to integrate ICT you must have a view of how learners learn, the learning styles, the learning strategies, their personalities, to know about the sociocultural atmosphere of the classroom, is it appropriate to integrate technology or not, you know we say that our learners use technology in their daily lives but it doesn't mean they use it for education because when we integrate ICTs, it is for the purpose of education ... in their daily lives they use technology for daily purposes ok ... and sometimes we face problems with learners who cannot use technology for the purpose of learning.

Researcher: What solutions do you propose for facilitating the integration of technology?

Teacher n°2: Umm solutions err ... I think before trying to integrate technology I think that we need to err ... work at the level of teacher and learner resistance of change because we suffer a great deal from this problem, they do not like err ... many teachers they prefer even if technology is available, but they prefer to err ... use their traditional ways of teaching by bringing some "polycopies" (handouts) and giving them to the learners then explain the lecture orally, direct lecturing, but I think that teachers need to change their attitudes first, learners need to change their attitudes, teachers should be trained on how to integrate technology as it should be integrated in the classroom not just using computer etc., and learners should be trained on how to use technology by their teachers not using technology as we use it in everyday life ... if we refer to the macro level, at the political and cultural level, it is something else, it is a big

problem because we err ... because our political, our cultural context does not support this kind of learning we are still ...

Researcher: Legging behind ...

Teacher n°2: Yes.

Researcher: The last question, do you feel threatened by the technological advancement, for you as a teacher are you concerned that technology will replace you or diminish your role as a teacher?

Teacher n°2: I don't think so because I believe that the role of technology ... technology can never replace the teacher err ... we believe that learners can learn using technology but they need the teacher to guide them, the teacher will not be as in the traditional classroom who is the sage on the stage ok, but with technology the teacher will be a guide on the site, he will guide the students, he will manage the classroom, he will not be as in the traditional classroom, the one who provides knowledge etc., so technology cannot replace the teacher but I think it will facilitate the role of the teacher more and more.

Researcher: Ok, thanks a lot.

Interview N° 3: (15mns: 44sec)

Researcher: What do think when you first hear the word CALL, computer assisted language learning?

Teacher n°3: CALL, never heard of it

Researcher: Yes CALL, computer assisted language learning.

Teacher n°3: Well what do I think about it, certainly integrating means of err ... integrating technology into teaching that's a great step, but I think we are far behind and we are far away from applying this into our system, so I don't know exactly what you mean? ... you mean what I think about the concept or

Researcher: What comes into your mind that's it, are you familiar with it or not?

Teacher n°3: Yes of course, as you may have been aware that I have done my Masters in China ... so there they use all kinds and means of technology, computers, projectors, internet, Wi-Fi in the classroom, so yes of course this will make the teaching process go a lot easier.

Researcher: Ok, and how often do you use computer devices and other technological devices in your daily life?

Teacher n°3: All the time, I practically use my computer for at least eight hours a day, yeah I spend more time with my computer than with my family.

Researcher: And what about using it in the classroom, computer and other technologies?

Teacher n°3: Err ... I think it's ok, many times I've seen my students bringing their laptops, ... I think it's ok though I don't prefer that kind of learning with a laptop, I mean the conventional way or bringing a laptop here err ... no, I prefer that the university would provide students with laboratories for instance, right labs yes that would be great err ... but for students to bring their laptops, it's fine with me really, but I don't think it's a good way of learning.

Researcher: Do you use technology as a teacher?

Teacher n°3: Oh I've never used it here in Algeria.

Researcher: Not here, have you taught in China?

Teacher n°3: Yes for two years.

Researcher: And have you used ICT there?

Teacher n°3: Every classroom in China you know before they build a classroom they have requirements, first of all, computers must be installed in the classroom and cameras, so it's a necessity for them, so yes we had computers and we had to work with computers all time, because we cannot give a lecture without giving a PowerPoint, presentation of the lecture, err ... in China it is like this, you have to first give a PowerPoint presentation and most of the time since we had access to the internet err ... umm we watch movies, listen to songs to help us you know ...

Researcher: Is it only used for delivery? Or also for practice and assessment and so on.

Teacher n°3: I don't see how we can use technology to assess students, how can we use a computer to assess students?

Researcher: Through different applications and err ... online assessment tools such as those for grammar and so on.

Teacher n°3: No, you see, the thing is when we were in China they would give us a program, this is one thing ... so you already prepare the course, a lecture ... you prepare it at home, so you may rely on the internet or technology whatever that means, you may rely on to simply facilitate your teaching to give for instance err ... if you see that your students did not grasp an idea, they are not following you, so you may rely on the internet to give them examples, pictures, most of the time I give picture, I go to Google pictures and simply give them pictures about that I'm talking about and they get the idea, I merely rely on the internet only on that thing, just when I see it's difficult for the students to err ... but I'm more into the conventional way of teaching.

Researcher: Ok, and have you received any training on how to integrate ICT into your practice?

Teacher n°3: Oh no never, unfortunately never.

Researcher: Not here nor there.

Teacher n°3: Never no ... even in China we never had that.

Researcher: Ok, what do you think are the advantages of using ICT?

Teacher n°3: Well, you know the advantages of using ICT, simply the use of technology is advantageous right err ... you know it can help us in many ways for instance as I have said the thing with pictures err ... and videos, you know in China sometimes in a given period of time they required us to integrate movies and videos for the students, you have to actually, you don't have a choice, we had to show students some videos and sometimes some parts of movies in order for them to understand, so yes err ... I think the use of technology is essential err ... umm and it's shameful for that we haven't yet applied these things though it is err ... if you go to China for instance and even in Europe I think, err ... using such a means of technology is nothing, it's like when you put a chair in the classroom it is a constitute part of the classroom, it's not something big as we may see it here , right ... so yeah hopefully in the future Insha'Allah why not, I hope we can rely more on technology.

Researcher: What about the disadvantages of it?

Teacher n°3: Well the disadvantages of technology simply err ... depend on how you use it, if we use it on err ... if you use it for improving teaching process I think it's quite positive, and also there another disadvantage I think, it's when you rely on it too much, relying too much on technology is not good, err ... it err ... how shall I say it, it encourages laziness, it does, it really does, and people will feel even tired to write, to use the pen, which I think will never err ... how to say it, ...

Researcher: Replaced ...

Teacher n°3: Yeah, the conventional ... the paper and the pen will never be replaced no matter what, no matter how developed we get, the pen and the paper will always be useful, right, ... it's just like when you read an eBook and a book, a hard copy book, you can say the difference, it's not the same, though as we said technology may facilitate the reading habit for instance, if we read an eBook online it might be easier, right because it's online you can research sometimes ... umm in my case I have a dictionary installed in my computer so it's easy to search but it's not like when you touch the paper, but still it's important to integrate ICT in learning and teaching yeah.

Researcher: Ok, what about students' attitude towards ICT? Is it positive or negative?

Teacher n°3: Umm I've never talked to my students about this, but err ... I think they would like it, they will like the idea of it, yeah, but first of all I think before we should try to integrate ICT, I think we should organize seminars to introduce what is this to our students as you may know that our students are not err that how shall I put it, they are not self-conscious, really, unfortunately this is the truth so we should ... actually I have already talked to Mr Boulouar ... we have talked about this ... we discussed that we should organize seminars to introduce the use of such technology and then I think after a while they will be ready to accept the idea.

Researcher: Ok, what are the hurdles that impede the integration of ICT at the level of our department?

Teacher n°3: I see no hurdles, simply there is no will.

Researcher: The absence of will ...

Teacher n°3: The absence of will that's all, I mean there is money, this university receives a budget, a great budget every year so where does budget go, so there is no hurdle, simply these people, people who are in charge in this university I think they are simply ... I'm sorry to use

this term and I'm being recorded, they're simply being coward to take great steps because people this is just a nature in people, people are always afraid of the change, something new, change, it scares them because they don't know it yet ...

Researcher: Change resistance

Teacher n°3: Yeah change resistance, simply because they are afraid of the unknown ... so it takes a bit of a strong will and a bit of bravery really to decide for instance ... say tomorrow we are going to install Wi-Fi and have Wi-Fi access to all the classrooms and students for free err ... and we'll have an eLibrary, an electronic library, we'll have err ... computers in each classroom, I think it's ok, you have the money just bring the experts and they will do the job for you ... apart from this there are no hurdles.

Researcher: What about the solutions?

Teacher n°3: The solution is to keep insisting, everyone, students, teachers, researchers err People who work in the administration, they should insist and keep insisting ... of the urgency of using such means of technology and err ... there is another one actually, another solution err ... I have noticed something in China that when they want make a change, when they want to present a new idea, they organize seminars and they invite foreigners, foreigners who have already done this in their countries, in the case of China for instance they would invite Americans, and most of the time American great writers, American professors from well known universities, they would invite them to attend these seminars and to show students that actually they have done it, we can do it, you see the idea, so yes I think this is it.

Researcher: How do you see the future of ICT in EFL classroom in Algeria?

Teacher n°3: Umm I think we still have some time to be able to integrate such technology , umm ... I think given the current situation we're living in I think we still have at least seven to ten year before we can apply these ... yeah it hurts but that's the truth, yet we have to keep insisting and persist in our quest right err ... actually there is another idea, sometimes we should not rely on the administration, for instance I give you an example, I have a friend err ... an Algerian friend who also studied in China an err ... once he brought home a projector, and it was portable, small, convenient to take it wherever you want and he said actually he bought it for his classroom for his future career when he becomes a teacher, so we shouldn't rely on the administration and wait for the administration to bring me the projector or computer, we have all laptops nowadays err ... the idea of the projector, I can buy one and we can use it here, so

yes why not start, why always waiting for the administration, as the Americans say it's not what your country does for you, but what you do for your country, so the idea is simply err ... taking the step err ... so why not, probably since I have started, I'm a new teacher, I've been teaching for seven months, so for this year there isn't going to be any change, I'll just follow the system but for next year Insh'Allah I can assure you there will be some changes err ... I'll try at least, I can't just sit here and wait.

Researcher: Last question, do you feel threatened by the advancement of technology, as a teacher?

Teacher n°3: Do I feel threatened? ... no, why? Why should I? I think the err ... relying to much on ICT can threaten the process of teaching not the teacher himself, but this Relying to much I said can really harm the teaching process as I said it would make students lazy really, I have noticed some Chinese students, the ones I used to teach, most of the time they were last, I gave them assignments and homework but they wouldn't do them or at least they wouldn't do it well err ... but still we have no choice, we must use ICT and integrate it into our classrooms err ... it just depends on ourselves and how we use them and to what degree, and this is the job of the administration to bring the right experts and yeah that's it.

Researcher: Ok, thanks a lot.

Interview N° 4 (9mns: 44sec)

Researcher: First, what comes to your mind when you first hear the expression computer assisted language learning?

Teacher n°4: What comes to my mind when I first hear the expression computer assisted language learning ... is to support my teaching using computer ... using I mean err ... nowadays is not only computer it's err ... tablets and other forms of it.

Researcher: And how often do you use computers and other technological devices in your daily life?

Teacher n°4: Do you mean in teaching?

Researcher: No, daily life?

Teacher n°4: All the day.

Researcher: What kind of technology do you use?

Teacher n°4: Computer, I always have my laptop with me, I use it for my studies, for almost everything.

Researcher: What about internet?

Teacher n°4: Internet it depends on the place where I am, ok ... in the university we don't have connection so it's a pity.

Researcher: What do you think of the use of computers in the classroom? EFL classroom?

Teacher n°4: Well you see I'm a novice teacher ... and I try to use it with err ... in civilization module and it was really good because I could provide so many things to my students, you see ... I try as much as I can to use datashow and a computer as well ... so it's really useful ... it was useful to me so I could speak I could do whatever I want instead of holding a paper in my hand.

Researcher: And have you received any training on how to integrate ICT?

Teacher n°4: No, no training courses, but I would wish to ...

Researcher: You told me that you used ICT previously in your classroom, and was it only for projection and delivery, never for testing or ...?

Teacher n°4: No, I don't know how to use them for testing, I never had a training on how to integrate ICT in teaching.

Researcher: The next question umm ... what do you think are the advantages of using computers in the classroom?

Teacher n°4: You mean for teacher or for students?

Researcher: Both.

Teacher n°4: Well for students ... unfortunately, not all students are up to buy a computer and to use it in their learning, ok in the classroom you what I say ... but for teacher using a computer plus a datashow ... it's becoming nowadays as a fashion I guess ... because you see there is a particular way in which you can provide information using a computer and a datashow, I believe in so although I've never had training courses ... using the datshow just to pretend using it,

that's not workable ok .. because there are some err ... some err ... "some" you know using datashow just to say we're using a datashow in our classroom, we're integrating ICTs and that's really useful etc., but that doesn't work.

Researcher: Using it for the sake of using it ...

Teacher n°4: Exactly.

Researcher: Now what about the disadvantages?

Teacher n°4: You become a slave of computer and datashow, you forget about the board as I did ... so it's really rare and still I focus on not having the ability to be trained on ICT integration ...

Researcher: So forgetting about the board is being slave to ICT?

Teacher n°4: Being a slave to ICT and considering that computer and datashow use ... wrong use is an appropriate way to teach whereas if I see the way you're teaching ... integrating ICT in teaching and using the board, I would definitely choose the board and not the ICT because it's misused ok ... but if you know how to use it that's ok.

Researcher: What's students attitude towards computer assisted language learning? Is it positive or negative?

Teacher n°4: Can I provide you with an example from ESP teaching?

Researcher: Yeah, please.

Teacher n°4: Well ... for ESP teaching I told you and I repeat I've never had training courses on ESP and it came to the idea last year to use the datashow and computer as a means to provide listening comprehension activities to students err ... who are not English students ok ... and it was really useful for me and for them, and they said yes miss the courses are really good and we like it, and I tried to have of course some activities that err ... go with their field, and the surprise is that I had students from the other teacher's class coming to my courses and I could notice the effect that the datashow had although I have never had training courses ... I believe it's good ... attitude change from negative because they were so afraid of English and ... umm they had never had English courses before ... and starting from last year it could be said ... well good, err ... not really but acceptable.

Researcher: What about the attitude of teachers here in our department? Do you think they have a positive attitude towards ICT?

Teacher n°4: Err ... it depends on their understanding of ICT ...

Researcher: Don't you think that old school are more resistant?

Teacher n°4: There are some teachers who really know how to use the ICT in their classroom, ok ... they are really able to integrate ICTs and combine them with their teaching methodology etc., they're really perfect err ... but for others it depends on their understanding of ICTs, you understand ICT integration in the classroom as a means to show off and say it's ok I'm up to date that's wrong.

Researcher: Next question, if I may ask you about the problems that impedes from using ICT at the level of our department?

Teacher n°4: Internet connection ...

Researcher: Internet connection first one, what else ...?

Teacher n°4: First one and umm ... training courses ... this is the second ... I'd love to be trained how to use and integrate ICT into my classroom, and err ... perception ... others' perception of ICT integration ... I think these are the main ones.

Researcher: What do you think of the future of computer assisted language learning in Algerian EFL classroom?

Teacher n°4: Well ... see I really don't know ...

Researcher: Can't you see any future for it err ... in the immediate future, let's say ten years or so? Will teachers change and start integrating ICT or we'll remain where we are now?

Teacher n°4: Well there are some teachers who are still working with the board and saying that ICT is useless, do you think it's really good to predict the future?

Researcher: What about coming teacher generations ... are they more likely to use it?

Teacher n°4: Yes, they are experts of ICT I believe.

Researcher: Last question, do you feel threatened by ICT? Do you think that ICT will one day replace you as a teacher and you'll be of no use?

Teacher n°4: It is in China ... and we're afraid to lose our jobs.

Researcher: What about here in Algeria?

Teacher n°4: Well ... not really they are not that clever so they will keep teachers for the time being.

Researcher: Thanks a lot.

Interview n°5 (9mns: 43sec)

Researcher: The first question, what does the expression computer assisted language learning mean to?

Teacher n°5: it's the twenty first century development if you want ... but it means a lot of things especially for teachers who want to prepare their lessons, and makes it easier for the learners to follow better than in the traditional methods because you know with err ... let's say data show ... for those who use data show, first we are not going to waste time ... students can follow and learn new words ... new things err ... imagine when you use the traditional way, students can interrupt you ... how we write the word? how is it spelled? What does it mean? But ... seeing it and then asking question, can be easy for the teacher to manage ... imagine in traditional way you read or dictate to students or write on the board, it's a waste of time, whereas with ICT thing are much easier ... however not all teachers can use these devices in classroom ... may be because of availability ... as you know I use my own personal devices but I don't think all teachers can do that ... may be I don't know ... may be they cannot buy them or ... may be they don't want to buy them and only want to teach in the traditional way ... this is another thing.

Researcher: How often do you use computers and other technological devices in your daily life?

Teacher n°5: It's everyday ... if not in the classroom, I use them at home to do research or ... may be to read newspapers on the internet rather than buying them from the shop or something like that ... but everytime I use my computer, it become like a ... like a habit if you want.

Researcher: Do you use ICT in your teaching?

Teacher n°5: Yes, of course ...

Researcher: I've been your student and I know that ... but have you received any training?

Teacher n°5: No this is only ... if you want personal ... of course I had some courses on how to use computers etc ...

Researcher: But these courses ... are they offered by the university or a personal initiative?

Teacher n°5: Personal.

Researcher: So was it at a private school or ...

Teacher n°5: Yes and I ... I learnt through manipulating if you want ... right ... like powerpoint and so on, I learnt by myself.

Researcher: And when you use ICT in your classroom, for what purposes do you use it?

Teacher n°5: For courses as I said ... I avoid teaching in the traditional way ... and I could see that students are attracted to it.

Researcher: What about the types of software and hardware that you use? So data show, computer

Teacher n°5: Data show, computer ... it depends ok

Researcher: it depends on the purpose ...

Teacher n°5: Yes.

Researcher: Ok, and would you please summarize the advantages of ICT? What are the advantages?

Teacher n°5: The advantages of ICT as I told you ... it facilitates if you want for the teachers, and also for the learners ... but as I said before the problem is what ... is the availability of these devices ... I don't think all the teachers use this here in the faculty of English ... may be we are three or four teachers who use them and it's not enough ... but here it's a choice.

Researcher: and what about the disadvantages? The negative side of ICTs?

Teacher n°5: Oh yes, imagine the electricity goes off ... and then how do we work ... it's a problem ... however I think this the only disadvantage may be.

Researcher: What do you think is the attitude of students in regards of ICT? Is it positive or negative?

Teacher n°5: No no, most of the time it's positive not negative ... because sometimes I have discussions with them and I ... I ask them is it better to use these materials or you want me to change the method, they told me no sir, it's ok ...

Researcher: It worked better for them ...

Teacher n°5: yes, because when using ICT I give them like the important point if you want, it's not like reading everything ... on the board they get only the important points and they can develop them later on ... and I use time to explain while they take notes, it's better than reading ... because when reading sometimes miss some important points.

Researcher: Ok, what about the attitude of teachers ... generally speaking at the level of our department?

Teacher n°5: I can't tell you ok ... I have no idea about that.

Researcher: What are the problems that face you as a teacher when you try to use ICT? Problems that our department impose here?

Teacher n°5: No, no, you are free to do what you want ok, but as I told you there's a shortage of material.

Researcher: what about the lack of internet connection?

Teacher n°5: No, no, here we have no internet but it's not a problem for me ... if I have a course or a lecture, I don't need internet at the classroom.

Researcher: And, What do you think is the future of using ICT here at the level of our department?

Teacher n°5: I think it is a must ok ... it's a must for teachers to use it now.

Researcher: And do you think this requirement of use of ICT is a threat to teachers?

Teacher n°5: no, the problem is what ... most of the time ... and I knew this through experience ... when CBA was first introduced, most of the teachers resisted ... why? ... because they don't want any changes ... because as I said there should be training and so on ... but most of them

are threatened by it because it's something unknown, something new so they resist it ... you see this is what I mean ok ... so it's up to the teachers, so ... those who want to use they will adapt ... and those who resist, one day they will be obliged to use it ... it's like the new reforms ... we have to follow and use the programs of the reform ... so one day they are going to tell the teachers you have to use it ... the future is for ICT.

Interview n° 6 (10 mns)

Researcher: What comes to your mind when you hear the expression computer assisted language learning?

Teacher n°6: The use of technology in order to improve the process of teaching languages.

Researcher: ok, and how often do you use technological devices in your daily life?

Teacher n°6: err ... honestly, I don't really use technology because of material constraint ... ok, honestly speaking of course ... I'm not going to lie, I do like using these technologies to teach but it's a problem of devices and availability of materials at the level of English department of course.

Researcher: This is about your daily life, you don't use them that much, what about your classroom?

Teacher n°6: In the classroom it's something really interesting, as ... we can easily catch the attention of students, especially nowadays, they are so much involved in all that's technology compared to the previous generations of course, they are much more involved especially with the use of social networks like Facebook and Twitter and so on ... that's what's why it much more important to use them nowadays than before.

Researcher: So you use technology in your teaching?

Teacher n°6: Yes.

Researcher: Yes, so what type of technology do you use? Be it software or hardware?

Teacher n°6: err ... since I can't use them at the classroom, I advise, I advise my students to use them outside the classroom ... so the advice that I'm giving to my students is the use of social networks to improve their English ... I always tell my students whenever you have friends from abroad especially from English speaking countries ... try to use standard English

rather than the use of contracted English or colloquial English or slang, ok ... so just to improve their speaking with natives ... as they don't have opportunities to speak with natives here in Algeria ... yeah ... so it's something really good ... we don't have internet at the classroom but we can use it at home.

Researcher: The lack of materials is what impedes you from using ICTs, are there any other problems besides that?

Teacher n°6: No, no ... we don't have other problems, may be the preparation of materials as if we use ICT in the classroom we have to prepare specific materials, it's not the same way we prepare lectures as we used to do ... so we have to prepare using ICT and select some videos and integrate them, and we don't master these skills.

Researcher: and what about training have received any training on how to use ICT in your teaching?

Teacher n°6: No, as university teachers, we never received any type of training in using the ICT.

Researcher: Ok, and what do you think are the advantages of using ICT in teaching?

Teacher n°6: Of course, students are much more interested when having this way of teaching err ... it gives a specific mood in the classroom err ... it's something original ... because when we say ICT we have colours, we have sounds, pictures, movies, motion, ... let's say it's an entertaining way of having lectures, and when we say an entertaining way, it's really a great pleasure for both, teachers and learners to get those kind of err ... learning of course.

Researcher: Ok, what about the disadvantages?

Teacher n°6: The disadvantages ... I belong to the old school and I believe in the ancient way of learning languages like books, written materials and the board of course ... so this is a classical way of teaching, ok ... my ancestors for centuries have been dealing with this teaching and learning ... so the disadvantages is that I'm afraid that the students rely on technologies to learn any given language ... so they will rely on technologies and we know that in technologies we have some disadvantages like err ... electricity for instance, breakdowns, and so on ... this is it.

Researcher: what about students' attitude about technology? What did you notice? Is it positive or negative?

Teacher n°6: Of course positive, nowadays positive, yes ... they do like having lectures with new ways and technologies ... and of course once again to the disadvantages, we do want the students ... the learners to be active and not passive ... and of course whenever we have an entertaining way of learning a language, we are afraid that students will get passive, they are just looking for a movie or something like this, but we don't really want them to be passive in the classroom, but active, ... it's like the way in ... the two different methods, the first one the learner is the core of the lecture and the other one is teacher centred , so I'm afraid with technologies, it's no more the teacher or the learner but the technology at the centre of teaching and learning process ...

Researcher: you mean technology centred teaching and learning ...

Teacher n°6: Yes, that's it.

Researcher: What about teachers' attitudes towards technology?

Teacher n°6: It's linked to the age of course, those who belong to the classic or old school they don't really rely on technology ... and for the new generation of course they really want to use this kind of technologies.

Researcher: Ok, could you please summarize the problems that face you when you want to use technology here at the level of our department?

Teacher n°6: The first thing as I said before is a logistical problem, it means the availability of the tools and materials at the level of English department, it's really important, because we're always asking for computers and these things and unfortunately ... even for phonetics, it's a technical module and for listening comprehension of course where students are supposed to listen to natives ... of course we need headphones and so on ... things that are not really available at the level of English department ... and of course, it's a must, we do need and we do have to use this kind of technology especially for listening comprehension of course ... and unfortunately, we don't have this kind of tools ... this is to summarize.

Researcher: What do you think is the future of CALL here in our department and Algeria in general?

Teacher n°6: the future of CALL ... may be not tomorrow, but ... may be two, three years or more, it depends because this deals with policy, of course at the level of government rather than faculties or departments ... and teachers of course ... in some countries they use smart boards, which teachers cannot afford to buy one ... they must be provided by the department.

Researcher: the last question, do you feel threatened by technology? That it will replace you one day?

Teacher n°6: No, because you know even with technologies we need someone to give the data to these technologies ... and the data is given by an expert ... and who's the expert ... in this case teachers are of course.

Interview n° 7 (12mn: 51sec)

Researcher: First question, what comes to your mind when you hear the expression computer assisted language learning.

Teacher n°7: Computer assisted language learning ... a new method which facilitates learning ... it can be used either by teachers or students, ok.

Researcher: How often do you use technologies in your daily life ... apart from teaching?

Teacher n°7: Apart from teaching ... daily ...

Researcher: And what type of technologies do you use?

Teacher n°7: Computer, iPhone, internet, etc.

Researcher: What about in teaching?

Teacher n°7: No, err ... I teach linguistics and it's a rather technical module ... I couldn't integrate it in my teaching as I ... I have to explain everything ... I'm not narrating, this is not cultural studies, or literature ... but Linguistics need more explanation.

Researcher: So this is the only reason, what if they give you another module?

Teacher n°7: Yes, I thought oral expression three years ago and I have used ICTs.

Researcher: And what about training have you received any type of training on how to use ICT in your teaching?

Teacher n°7: No, never.

Researcher: Never, ok err ... what do you think are the advantages of using technologies at the classroom?

Teacher n°7: Using new technologies opens the door for a new facet of learning, ok ... you know that all around the world are using technologies in teaching and learning on the part of teachers as for learners, ok ... now err ... to use this is to be within the same process here in Algeria to be able to use these technological innovations ... we'll be able on the stage as the other countries ... because we are living in the age of globalization, we have to follow the same route ok, but unfortunately we are so underdeveloped country which ... to accomplish so many things before we arrive to the use of ICTs in teaching and learning ... we have followed LMD system for example, it is not as you see it applied here, it's catastrophic.

Researcher: Ok, what about the disadvantages of using ICTs in the classroom?

Teacher n°7: Facilitation for students ...

Researcher: So this is a negative side?

Teacher n°7: Yes, students don't make any effort, when ask them about any linguistic theory for example so they go home, look it up in the internet, print it, and give it to the teacher, but when you ask them in depth question concerning their understanding of that theory they ... they don't understand it, they just recite it as they found it ... but they cannot explain it ok err ... technological innovation is lacking on the part of the student ... because the students are not able to make efforts, it facilitates learning ok, but ... in parallel it diminishes this learning because ... on the internet everything is ready made.

Researcher: What about students' attitudes about ICTs in learning and teaching? Is it positive or negative?

Teacher n°7: I don't know about their attitude, it's up to you to measure it err ... few years ago a group of students asked why Miss you don't use these technologies, and I explained for them that I can't because of the nature of linguistics module, so I have to go step by step and explain every single technical word or term ... the use of ICT will take a lot of time and I don't think it suits my students.

Researcher: Except for the nature of the module, what about the problems that impede teachers from using ICT here at our department?

Teacher n°7: There's no equipped rooms and err ... mainly lack of facilities and materials.

Researcher: what do you think is the future of CALL in Algeria? Does it have a future or not?

Teacher n°7: It will take us a long time to apply this method in teaching ok ... there are many steps to take ... you have to prepare teachers, to prepare students, to prepare err ... materials etc.

Researcher: Do you feel threatened by ICT as a teacher?

Teacher n°7: Yes, it's a fact in Europe and USA where there are methods in which ICT replaces teachers ... and students in one place listen to a lecture done by a teacher in a different place ... Chomsky still gives lectures in this way from his home.

Appendix Number Six: Administrators' Interviews Scripts

Interview n° 1 (9 mns: 12 sec)

Researcher: So, the interview is about the use of ICT in EFL.

Administrator n°1: Ok.

Researcher: The first question is, have the administration encouraged the use of ICT at the level of our department?

Administrator n°1: No I don't think so, it's a personal initiative, teachers themselves decide what to use during their teaching, ok ... it's a problem of means, ok ... well I simply have to tell you the truth ... since the initiators of this faculty are Arabic department so they don't care about using ICT during their lecture, ok ... those who think about introducing ICT are teachers of foreign languages, mainly English and a bit French, ok ... so this is my opinion, it's a personal initiative ...

Researcher: So, it's up to the teacher ...

Administrator n°1: Yeah, it's up the teacher and his educational background, to his knowledge of the technology ... if he feels comfortable with it he's gonna use it ... this is on the one side, on the other side there's just one datashow in the department, there's one here which belongs to the administrative staff and I've never used it because I fear unexpected problems with it ... there are datashows installed in the amphitheatre but you need to bring your own computer, so you're reluctant to use these equipment here.

Researcher: Going back to facilities, what are the facilities provided by the administration?

Administrator n°1: here?

Researcher: yes.

Administrator n°1: The board, mainly the whiteboard ... err in the amphitheatre you've got the white board and the black board which means that you can use the chalk and the marker, whereas in the rooms the marker only.

Researcher: Concerning ICT?

Administrator n°1: Nothing.

Researcher: Umm ... have the administration provided teachers with any training on how to incorporate ICT in their teaching?

Administrator n°1: No ... according to my knowledge no, never ... this is as I told you at the beginning is a personal initiative of teachers.

Researcher: Ok, what about the problems that impede teachers from using ICT?

Administrator n°1: First, lack of materials ... may be there are teachers who fear using these materials, which means lack of knowledge, how to use it etc, ok ... may be the rooms are not meant for projection, ok ... because those who sit at the back of the class see nothing, but in the amphitheatre it's better.

Researcher: I also wanted to ask you about the computer room, we have one here but it has never been used.

Administrator n°1: I don't know ... I'm learning this from you today right now, though I'm a vice dean, where's it?

Researcher: I think on the third or fourth floor, I'm sure there's one I just don't know where's the location and I know that it has never been used, and the reasons why are unknown ...

Administrator n°1: I have no idea, believe me.

Researcher: What do we need to do in order to facilitate the incorporation of ICTs here at the level of our department and make it normalized?

Administrator n°1: ok, first we need training, to training teachers on how to use it, then you need specific rooms where you can use projection tools, we need a room where we store all these materials, such rooms are available even in secondary schools whereas here there's nothing, teachers are left alone, if you can buy a datashow you bring it with you and teach with your personal material and this is what some of the teachers are doing, ok ... otherwise nothing believe me ... so we need to train teachers and we need to buy, ok ... whenever we hold administrative meetings we state that we need more datashows but they say you've got one, two is enough, why? Simply because the mentality of those who are the head of the institution they don't care about using ICT and they don't know how to use it, may be they've never used it.

Researcher: According to you there are no future intentions to incorporate ICTs?

Administrator n°1: No way for change, it's a question of mentality, how can you change a mentality of a teacher who already has twenty or thirty years of experience? Ok ... may be in the future with the new ones, and you have to include training in their schedule, may be weekly may be once a month ... we also need a political will, decision ...

Researcher: It has to be imposed ...

Administrator n°1: Yes imposed otherwise they don't care, believe me there are teachers who only speak and don't care if there's a feedback or not, ok ... it personal will which will determine whether teachers will use ICT or not, and this also applies to the degree of inclusion.

Interview n° 2 (9mns: 13sec)

Researcher: So the first question is have the administration encouraged the incorporation of ICT in EFL instruction?

Administrator n°2: To a certain extent yes if we can, unfortunately some of the things are beyond our scope, we can do nothing about that, but of course we're in favour of introducing ICT in our department for all teachers as well as the learners.

Researcher: Ok what measures have been taken?

Administrator n°2: For the time being we can say limited ... very limited in a sense that we have just a datashow and some personal computers, that's all ... unfortunately we have a multimedia language laboratory in the former faculty of letters, unfortunately here we don't have ... though we expect something new in the future.

Researcher: Ok, and have the administration provided the teachers with any training on how to incorporate ICT?

Administrator n°2: No, unfortunately no ... and I don't think it's the duty of the administration to provide teachers with such training ... now I think in my view as the head of the department and I'm speaking out of experience, such a thing can be done personally I mean if a teacher feels a need for that training, he has to do it, this is the way it's done everywhere in the world, if a teacher needs some knowledge, some skills to use these ICTs I think it's his duty to have a training not the administration ... It's a must anyway, it's like the young the generation to be up to date he must do it ... I did it personally, I paid for two trainings for computing.

Researcher: What I meant is not using ICT itself but how to employ ICT for instruction.

Administrator n°2: Yeah I know, but we have things which are common and general, and then it comes to particular training but we have some general knowledge that I think it's personal duty, the ministry I remember provided some free training for computing courses ... I think it was successful to a large extent but not all teachers were interested especially those belonging to former generations and they resist still the use of these ICTs ... I think for university it's a must to have some knowledge on how to use ICTs.

Researcher: What are the reasons for which teachers abstain from the use of ICTs?

Administrator n°2: The first one, I don't think they feel at ease using these ICTs because they are not skilful enough at using them, this is the first one for which they need to get training to free themselves from that anxiety, second of course they're not provided with ... the institution in a sense they encourage this but they have to provide, the classrooms are not equipped for instance except the amphitheatre, but normally now these ICTs should be present even in classrooms ... So the lack of materials ... fear of the teachers, and some ... there's another reason ... teachers belonging to the previous generation still resist ICTs ... there's a saying, old habits are very hard to die, these teachers are accustomed to using a way err ... this is why they resist, all that's new threatens to certain extent these teachers, and it's easy what you have done and have been doing for many years, this is for lazy teachers let's say who don't want to have an update to their teaching environment ... these are the main reasons.

Researcher: ok, what can be done to overcome all these obstacles and encourage teachers to use ICTs?

Administrator n°2: Yep, there are two ways, in a sense we have to oblige teachers to get training, if we are really in favour of these ICTs, this is on the one hand ... for training we can have evening sessions, we can have summer courses, I mean we can do it ... secondly, we have to provide the department with necessary equipment, language labs for instance and equip all classrooms with these tools, no only datashow and so on but even internet why not, all these should be done, but this is not an easy task.

Researcher: Ok, the last question, are there any future projects planned by the ministry or the head of the university in this regard?

Administrator n°2: For the time being no, whereas for the ministry I don't know, but for the department I'm not really optimistic for the time being, we still have problems, I mean we have to give priority to other problems, you see we have a large number of students, the faculty is very crowded I think the priority is to provide learners with amphitheatres and as you can see they are being repaired, classes for the huge number of students, I think there are other priorities for the time being that go before ICTs according to them, for me ICT should be among these priorities but as we can say for social peace requirement we have to first provide these and then I hope they will think about ICTs in the very near future.

Summary

The current work aims at tackling the issue of CALL absence from Algerian educational scene and the issues that impede its normalization. Analysis of the results revealed that Algerian education still lags behind in terms of incorporating ICTs under the current lack of a clear strategy and cogent planning; teachers' attitudes towards CALL proved more positive than those of students as they are more likely to adopt it; and that CALL normalization at the level of English department is hampered by tight budget, lack of basic facilities, absence of ICT training, students' negative attitudes and reluctance, and the no-need mentality of the administration. Regarding these issues the researcher suggests equipping the department with basic ICT facilities, providing teachers with a comprehensive ICT training, introducing CALL as a subject to students, organizing mass gatherings to introduce the concept of CALL, and adopting the Flipped Classroom approach. More importantly, the researcher suggests an action plan that encompasses all the previously stated recommendations and presents them under one comprehensive scheme that would facilitate CALL normalisation and limit the chances for thwarting factors.

يتطرق هذا البحث إلى مشكل غياب تكنولوجيات تعلم اللغات في المؤسسات التعليمية الجزائرية والمشاكل التي تعيق تعميمها. تبين عن البحث عدة نتائج وهي أن التعليم في الجزائر يشهد تخلفاً في استعمال التقنيات الحديثة في ظل غياب استراتيجية واضحة وتخطيط محكم، أن الأساتذة يملكون نظرة أكثر ايجابية نحو تكنولوجيات تعلم اللغات من الطلبة وهم أكثر تقبلاً لها، وأن الأسباب التي تعوق تعميم تكنولوجيات تعلم اللغات على مستوى قسم اللغة الانجليزية هي الميضية المحدودة، نقص الوسائل التكنولوجية التعليمية، غياب تكوين الأساتذة، نظرة الطلبة السلبية وترددهم، وغياب الإرادة لدى الإدارة. فيما يخص هاته المشاكل، يقترح الباحث تزويد قسم اللغة الانجليزية بالوسائل التكنولوجية التعليمية، تزويد الأساتذة بتكوين شامل، إدراج مقياس يقيس بتدريس تكنولوجيات تعلم اللغات، تنظيم تجمعات للتعريف بتكنولوجيات تعلم اللغات، وتبني تقنية التعليم المعكوس. بالإضافة إلى هذا يقترح الباحث خطة شاملة تتضمن كل حركات المسابقة وتنظيمها بشكل يسهل تعميم تكنولوجيات تعلم اللغات ويحد من فرص مقاومتها.

Résumé

Ce travail de recherche s'intéresse à l'absence de la technologie de l'information et de la communication au sein des établissements scolaires algériens, et aux problèmes qui entravent sa normalisation. L'analyse des résultats de cette recherche a révélé que l'éducation en Algérie est encore à la traîne en termes d'utilisation des TIC surtout avec l'absence d'une stratégie claire et bien planifiée; aussi que les enseignants ont une attitude assez positive envers l'utilisation des TIC que celle qu'ont les apprenants; et que les raisons qui entravent la globalisation des TIC au sein du département d'anglais est le budget limité; le manque des moyens technologiques de l'enseignement; l'absence de la formation des enseignants, l'attitude négative et l'hésitation des apprenants ainsi que l'absence de la volonté de l'administration à vouloir intégrer la technologie dans l'enseignement. Face à ces problèmes, le chercheur propose d'équiper le département de langue anglaise de moyens de TIC de base ; former les enseignants au TIC; introduire un module qui s'intéresse aux TICE; organiser des séminaires et des colloques afin de faire connaître mieux l'enseignement avec les TIC, et aussi adopter la méthode de la classe inversée dans l'enseignement de l'anglais langue étrangère. Plus important encore, le chercheur suggère un plan d'exécution qui englobe toutes les propositions précédemment énoncées sous un seul projet qui organisera mieux l'intégration des TIC dans l'enseignement des langues et diminuer les chances d'enrayer ses facteurs.