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Integrating ICT in the EFL Context: Spotlight on Teacher's Perceptions and Outlooks

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STATEMENT OF ORIGINALITY

I, hereby, declare that my doctorate thesis entitled "Integrating ICT in the EFL Context: Spotlight on Teachers' Perceptions and Outlooks" contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Souheyla BENMANSOUR

DEDICATIONS

To my wonderful parents,

To my dear husband and daughter,

and to all my family and friends.

ACKNOWLEDGEMENTS

It is of an immense honour to be under the supervision of Dr. Noureddine Mouhadjer, who in spite of his countless academic and professional commitments, has been at all times a spring of motivation and source of impetus to me. To him I express my sincere gratitude.

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I, also, owe a deep appreciation to the research participants for accepting to take part in this study. Definitely, they both challenged and inspired the soul of investigator in me.

ABSTARCT

From the start of the information age, ICT has upheld an essential role in improving the quality of education. Thus, lots of countries desire to perk up the effectiveness and quality of the learning process, and consider ICT as one tool to attain that target. This role in education involves assisting students to learn and teachers to execute their teaching vocation more efficiently. As a result of quick developments in a short period, ICT has turned out to be the focus of interest for pedagogical settings. Swift developments in ICT have also led to radical conversions in education. This brings about the significance for training teachers and students for these changes in the information society. The integration of ICT is essential to upgrade the quality of education and how ICT might permit teachers to construct different pathways. In these backgrounds, the educator's shifting role in the 21st century entails a vital role, which is to be the leader for connecting technological novelties to teaching/learning process. At this point, essential competencies and the degree of willingness are key factors in the implementation process of new ICTs. The major objective of this study is to get experiential data on the current use of ICT by educators and students to come up with strategies and action plans for integrating educational technologies in the Algerian higher educational system. More purposely, the study endeavours to (a) provide an overview of Algerian teachers' levels of implementation of Information and Communication Technologies (ICTs) in university classroom instruction, (b) investigate teachers' perceptions of barriers and challenges that may influence integrating ICTs in the teaching process, and (c) investigate teachers' perceptions of the significance of integrating different ICTs in teaching. The findings will be discussed in relation to learning theories in addition to the pedagogical outcomes for the use of ICT in EFL context.

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LIST OF ACCRONYMS AND ABBREVIATIONS

AED: Academy for Educational Development
BECTA: British Educational Communications and Technology Agency
BESA: British Educational Suppliers Association
CATT: Computer Assisted Teacher Training
CAI: Computer-Assisted Instruction
CoP: Community of practice
DEST: Department of Education, Science and Training
ECU: East Carolina University
EKN: Educational Knowledge Networks
EMIS: Education Management Information System
ESDC: Education Systems of Developed Countries
ETRF: Education and Training Reforms for the Future
ICTs: Information and Communication Technologies
ITC: Instructional Technology Centres
ITSC: Instructional Technology Sources Centres
ITMD: Instructional Technology and Material Development
LAN: Local Area Network
LMD: Licence Master Doctorate
MDGs: Millennium Development Goals
MOEYAS&HRD: Ministry of Education, Human Resource Development, Sports and Youth Affairs
NIM: Netcourse Instructional Methodologies
NOF: New Opportunities Fund
NSC: National Steering Committee
TLC: Teachers Learning Conference
UABT: University of Abou Baker Belkaid Tlemcen
USAID: U.S. Agency for International Development
VHS: Virtual High School
WAN: Wide Area Network
WTO: World Trade Organisation

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General Introduction

In a globalised world, education is pivotal and the role of teachers and learners to be technologically adept remains critical in the digital age. Technology is leading lots of aspects of human life and if incorporated appropriately can only further enhance the teaching and learning process and uphold the academic experience of both teachers and learners. It is essential to explore whether education technology known as Information Communication technology (ICT) affects the teaching and learning process in a positive way as compared to traditional learning. The present study places focus on how ICT Technology, throughout teaching and learning, can assure that the learners have a most favourable learning experience. This research discusses the integration of ICTs in the teaching and learning process, so as to investigate and make a major contribution to the current literature. The present research is, then, fuelled by the subsequent research questions:

- How effective is the integration of Information Communication Technology in classroom instruction for successful learning process for university EFL students?

- How academically appropriate is the integration of ICT for `reconceptualising' students' learning process?

- How can the perceived obstacles be challenged for appropriate integration of ICT?

The main goal of this research is to explore the use of ICT within education environments and its effect on teaching and learning process.

The subsequent secondary goals are targeted so as to attain the primary goal:

- To provide a relevant literature review which will help in specifying what ICT requires as well as its learning methods and strategies.

- To review existing experiential studies on the subject.

- To sum up, draw conclusions and proffer recommendations founded on the experiential results.

This study will discuss and check the following research hypotheses:

- Integrating ICT in classroom instruction would change and challenge the traditional learning process.

- Effective learning experience could be attained through the thorough use of ICT.

- Teachers' lack of training and lack of motivation and will to change are the main obstacles that could prevent successful integration of ICT.

The major concern of this study is to investigate the situation in which ICT is being used in an EFL learning environment. It sheds lights on the level to which teachers are using ICT and the impacts of integrating ICT on students learning experience. This research attempts also to place focus on the main obstacles and challenges that teachers may encounter when using ICT. The integration of ICT and its impact on teaching and learning will be discussed throughout four interrelated chapters.

Chapter one aims at providing a theoretical overview on the integration of ICT in EFL context, with a precise focus on teachers' perspectives since their vision and readiness play a major role in the process of adopting this innovation in the teaching

learning approaches and strategies. Furthermore, it attempts to draw a clear picture of the ICT learning outcomes and the importance of ICT in education.

Moreover, this chapter illustrates the challenges and barriers to integrating ICT in education. The main constraints that impede teachers' engagement and willingness to use ICT prevent the use of technology in education which could be successful and effective for both teaching and learning process. On another stand, it also states the strategic action for integrating ICT in order to overcome the barriers that teachers may encounter while integrating ICT.

Chapter two deals with the mixed method approach based on the data collected throughout quantitative and qualitative procedures. This practical phase is acted upon through different analytic instruments. First a questionnaire of six questions is administered to teachers of the department of English. The second tool is the interview carried out with the three teachers who revealed in the questionnaire their willingness to do the interview. As evidence shows, these procedures revealed a great number of findings about teachers' perspectives regarding the use of ICTs in classroom instruction, the outcomes of integrating ICTs on the teaching experience of teachers, and also the perceived obstacles and challenges that teachers meet when attempting to integrate ICTs.

Chapter three is devoted to analysing data that were collected through the research instruments. This chapter presents the research findings that are presented in relation with the research questions stated earlier. The crucial point of this investigation is to evaluate the current status of ICT in teaching-learning process regarding how teachers are getting prepared to use ICT in their classroom instruction as well as the current situation of the Algerian high education regarding how teachers use ICT in their teaching.

Chapter four, however, provides a sequence of recommendations with a particular emphasis on strategies as an attempt for effective integration of ICT to be

undertaken by teachers every now and then all along their teaching vocation so that to improve one's teaching practices. One more relatively crucial point is about the drawbacks of integrating ICT. It is essential to mention that the endeavour of this study is not only to use technology but to use effective approaches of teaching and learning with the use of technology to improve teachers' performance and students' learning outcomes.

To this outlook, educationalists, tutors and teacher trainers should take into consideration the concept of teachers' professional development and attempt to set off the innovative idea of teacher education development in training workshops. Only in this way, we can pave the way to a pedagogic change. More significantly, the process of English Language Teaching will achieve promising upshots.

Since teachers' beliefs have a great impact on their classroom practices and students' learning processes, the present research study endeavoured to scrutinize teachers' outlooks, cognition and mind-sets towards the use of ICT in EFL teaching and learning environments. Utilizing multiple approaches to study teachers' beliefs and personal perspectives about their practices divulged that the use of technology in EFL teaching is highly adapted and context-situated, i.e., it is not only teachers' personal knowledge, skills, or confidence in technology that assist this integration, but the whole context .

In the survey questionnaire, it was found that participant EFL teachers assisted the use of computer and Information Technology to provide students with more learning resources, improve instructional activities for submitting assignments, and facilitate classroom communication between teachers and students. Actually, teachers' beliefs about technology- enhanced teaching may not come out as inconspicuous from how English language instruction is approached and presently endorsed without the utilization of technology. They believed that technology should be employed in a way that matches with the current curriculum and their perceptions about EFL instruction in particular contexts. Then, they are persuaded to approve a type of technology-

mediated instruction that supports them attain their teaching goals, which are influenced by their own instructional beliefs and students' needs and backgrounds.

Teachers' interviews revealed that teachers' attitudes and beliefs about using ICT are in fact reflecting definite perceptions about EFL teaching and learning; namely, teachers are responsible to supply students with authentic and effective learning materials, language models and opportunities to practise the language skills that are indispensable for their academic and future career conditions.

Even if it is deemed among these teachers that technology has great potential in promoting communicative language learning, the integration of technology in this context may not spotlight these areas since teachers believe that there is something more significant in the classroom that requires to be investigated. This disparity between actual instructional technology activities and the apparent potential of technology use to uphold instruction was further impacted by the shortage of facilities and students' low language ability. These are main the barriers to technology integration which may also have hampered them from increasing the potentials of ICT in EFL instruction.

When particularly looking into the practices and perspectives of the teachers who are predisposed to integrate technology in particular contexts, it was found that each one practised his or her own understanding about the effectiveness of technology and confined language teaching practices to form personal principals or maxims which conduct the technology-enhanced language instruction. Participant teacher maxims are personalized and distinctive according to each individual teacher's classroom context and own perceptions of what potentials are brought to the language teaching and students' learning. Though teachers integrate technology in different context and obtain different types of support in terms of facilities, their positive outlooks about technology and understanding about the significance of technology in language instruction emerge as the strongest affordance of major integration in spite of the shortcomings they face such as limited network computers.

Hence, it is revealed that technology-mediated instruction is not merely a disposition or a set of strategies, but an upshot of insightful perceptions and critical thinking that explores and assesses the ongoing practice of teaching and learning within a definite environment. Studying teachers' attitudes has divulged the complexities of technology-mediated language teaching which are beyond asking students to use a given material to perform their language assignments. Instead, successful use of technology occurs as teachers know what they do in their classrooms, what their students' difficulties and needs are, and what 'works' for them and their students. Then, they make a decision to teach with technology or utilize it as a tool adding value to the learning processes within a particular learning environment. In this manner, particular tools are employed to develop what is conceived as good teaching.

Because technology use in Algerian EFL instruction is interceded by teachers' perceptions about what represents successful language teaching and how technology and information access can improve the role of the teacher in classrooms, at this point, providing teachers with the latest educational technologies is no longer what is needed to hearten technology-mediated instruction. More willingly, teachers should be engaged to consider the potential of each tool and how using this tool in the classroom could assist students' learning and achievement of current learning objectives. It is now vital to recommend EFL teachers to significantly estimate the potential of instructional technology, and the value it would bring, and then construct instructional methods and tasks that support the teaching learning process.

Finally, an important aim of this research was to address the importance of understanding the perceptions of EFL teachers. Although, including technology in language teaching is not mandatory in most Algerian university departments, EFL teachers cannot escape the need to teach with technology in the near future given the increasing presence and demands of online communication and electronic literacy. To ensure successful technology integration, it is highly important to tap teachers' cognition and perceptions about technology and their personal beliefs about language learning and teaching in particular contexts.

As teachers play a major role in any kind of education reform and innovation, their perspectives, understanding, and beliefs should not be left unexplored. Teachers should be encouraged to explore and understand the interconnectedness of their own teaching principles. Once these are made clear, teachers will have a more informed basis for the integration of technology into their daily classrooms.

CHAPTER ONE

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1.1 Introduction

Since the onset of this century, education has encountered critical challenges. In the information age, how to give elevated quality of education and training has turned out to be a fundamental query to be addressed for all who require education and can gain from it in the most cost-effective approach. Educational systems have endeavoured to surmount the challenges by adopting new approaches. The concept of Information and communication technologies (ICTs) embodies a new approach for developing the distribution of information and aiding to face these challenges. ICTs are bringing about dynamic changes in society. They are likely to affect all aspects of life. This is increasingly noticed at schools. Because ICTs afford both students and teachers with extra prospects in adjusting learning and teaching to individual needs, society is urging schools properly react to this technical novelty. Several studies stress the propensity of ICTs in rising access and uplifting significance and value of education in developing countries.

ICTs have reformed the manner people work today and are currently revolutionizing education systems. Consequently, if schools educate children in yesterday's skills and technologies they may not be competent and cope with tomorrow's world. This is an adequate reason for ICTs to lead global appreciation and consideration. Thus, the purpose of this study is to discuss the process of integrating ICT in education, in the attempt to revolutionize and enhance the teaching learning experience in order to hearten policy makers, school administrators, and teachers pay the requisite attention to incorporate this technology in their education systems.

1.2 The Concept of ICT Integration

Implementing ICT in the process of teaching and learning is not a new concept. It might be as old as other technologies similar to radios or televisions. Though, with the expeditious opening out of appearing technology, like web technology, ICT integration has ever more captivated the attention of teachers. In this section, we will expand upon the terms of ICT and integration independently before providing the definition of ICT integration.

ICT is fundamentally a tool. It can be hardware (such as computers, digital cameras), software (such as Excel, discussion forums), or both. In the context of teaching and learning, it mostly involves a variety of resources and tools (software) displayed on the computer. ICT is not specifically designed only for education; it is not a magic potion for resolving all educational troubles either. Though, it is "certainly a useful tool that enables us to link various learning communities together in new and different ways" (Taylor, 2000, p. 4). Research has shown that the exploitation of ICT can prop up new teaching and learning approaches and make some pedagogical methods like simulation or cooperative learning more practicable (Roblyer, Edwards, & Havriluk, 2004). Furthermore, teachers usually concur that ICT shows all the signs to perk up student learning outcomes if employed appropriately (Wang, 2001).

Integration has a meaning of comprehensiveness or fullness (Earle, 2002), by which all central constituents of a system are effortlessly blended together to make a whole. In teaching, merely giving students a compilation of websites or CD-ROM programs is definitely not ICT integration. In an appropriately moulded ICT integrated lesson, ICT and other essential educational elements such as content and pedagogy are shaped into one unit. As a consequence, the quality of the lesson would, by some means, be lessened if the ICT ingredient were cart off from the ICT-integrated lesson (Williams, 2003).

Placing these two words together, ICT integration in this paper is by and large delineated as a process of utilizing any ICT (comprising computers, data resources on the web, multimedia programs in CD-ROMs, learning materials, or other tools) to improve student learning. Accordingly, ICT is not a process; it is rather a product (Wang, Q., & Woo, H. L. 2007). A simple exploit of hardware and/or software will not make integration evidently ensue (Earle, 2002). Copious studies contrasting traditional classroom-based instruction with technology-enhanced instruction have come across unimportant differences in student contentment, attitudes, and learning outcomes (Johnson & Aragon, 2003). The main factor that affects the efficacy of learning is not the accessibility of technology, but the pedagogical design for successful use of ICT (Mandell, Sorge & Russell, 2002). The computer ought to be featured into the

curriculum, not the curriculum into the computer (Earle, 2002). Hence, effective ICT integration ought to crack down on pedagogy design by clarifying how the technology is exploited in such a way and why (Wang, Q., & Woo, H. L. 2007).

In the acronym ICT, the word "communication" is crucial in that the singular form refers to human interaction while the plural is generally concerned with the whole domain of data communications infrastructure. In fact, the former (the singular form) is the procedure or result while the latter (the plural form) is about the technology itself. The acronym ICT can also take a plural form (technologies) where it is perceived to involve specific devices or processes which jointly constitute the "Technology." This pluralized form (particularly in Queensland) is at times notated as ICTs. The term ICT must be conceived as a development from the precursor and more intently defined the term IT (information technology) which upholds its usage in government, business, industry and in relation to education and other academic courses working with such domains as programming, database design and expert systems. In the United States, synonymous terms such as "technology" and "educational technology" are drawn on. In his attempt to define ICT, Toomey (2001) states that it:

> … Generally relates to those technologies that are used for accessing, gathering, manipulating and presenting or communicating information. The technologies could include hardware (e.g. computers and other devices); software applications; and connectivity (e.g. access to the Internet, local networking infrastructure, and videoconferencing). What is most significant about ICT is the increasing convergence of computer-based, multimedia and communications technologies and the rapid rate of change that characterizes both the technologies and their use. (Toomey, 2001, p. 3)

Being a center of interest and core of investigation, ICT is inclined to mean computers and their peripheral devices. However the word "computer," mainly in a school setting, is a connotative more willingly than denotative term as "it may refer to anything from high-speed connected state-of-art machines to something which is dated, stand-alone, or poorly maintained" (Lloyd, Margaret,2005,p.3). The prototype of computers in schools may vary from individual machines, to dispersed models, and

to complicated networks (Ryan, 1999). There is no typical school prototype of machines and this is related to universal and school purchasing and preservation strategies. Then, a dissimilar and assorted compilation of machines of different capacities and prototypes may be being employed by students and making up the learning environment wherein teachers attempt to make students who are "creative, confident and productive users" of ICT (see Mceetya, 1999).Then again, there has been some overstated claim that ICT "is transforming the way individuals learn throughout life" (DEST, 2005, p. 7). It is significant to underline the research findings that persist that ICT infrastructure on its own has no effect to attain change in a school with the often-repeated argument that "while new digital technologies make a learning revolution possible, they certainly do not guarantee it" (Resnick, 2002, p. 32).

It has also been claimed that "technologies by themselves have little scalable or sustained impact on learning in schools" (Honey, McMillan & Carrig, 1999 in Hayes, 2003, p. 3) and that what, actually, is significant is "how" the technologies are used (Reimann & Goodyear, 2004). Various studies found that technology should be used to serve as a medium for change concluding that change and improvement were about pedagogical principles (Dexter, Anderson & Becker, 1999).

It is advocated that "it is the use of technology to create learning communities, a human intervention and not the technology itself that may reform education" (Lechner,1998, p. 22). A peripheral perception is about ICT or quite how it is "embodied in things; as ICT instruments which 'carry' a set of pedagogical principles or favorites" (Reimann & Goodyear, 2004, p. 12). While the computer is itself not a medium, its role as a catalyst for communication, teamwork and knowledge construction has the power to change learning.

The endeavour of integrating ICT has been launched as being "to improve and increase the quality, accessibility and cost-efficiency of the delivery of education, while taking advantage of the benefits of networking learning communities together to equip them to face the challenges of global competition" (Bruniges, 2003, p. 6). As a backdrop to (and debatably driving) these trends in education, ICT is being charged with the ability to change society (Fullan, 1993, 1997; Fullan & Miles, 1992;

MCEETYA, 2005) and, therefore being detained to be pivotal to school reform (Prestridge & Watson, 2002; State of Queensland, 2002).

It has been stated that "students should be confident, creative and productive users of new technologies, particularly information and communication technologies, and that they should understand the impact of those technologies on society" (Lloyd, 2005, p.2). The Education and Training Reforms for the Future (ETRF) in Queensland conceived ICT as one of its four target points of change (Education Queensland, 2004). The Federal Department of Education, Science and Training (DEST), in its review of teaching and teacher education claimed that "all teacher education programs train prospective teachers for the digital age where ICT is a significant implement in information and knowledge management and central to student learning" (DEST, 2004). In the initial release of Education Queensland's ICTs for Learning Strategy, it has been believed that:

> ICTs are at the core of teaching and learning in the 21st Century. Queensland's future depends on how successfully we integrate ICTs in the curriculum and daily learning and teaching. … Many teachers already use computers to enliven teaching and inspire students. In order to build a 21st Century schooling system …, we need teachers to understand how ICTs promote higher order thinking skills and deepen understanding in all key learning areas. (Education Queensland, 2004)

The cited statement brings to light the pivotal conception of integration and its thriving adverb "successfully." It also associates ICTs with "computers" and called the essential element of their use as being the teacher. It deals with a 21st Century education system and insinuating that ICT is at the "core" of this system highlighting its evident centrality. Thus, "unless more sophisticated notions of describing ICT curriculum are developed, researchers run the risk of promulgating severely restricted ways of measuring it" (Finger et al, 2003, p. 69).

Several attempts are alongside developing tools to measure the integration of ICT in the classroom (Fitzallan, N. 2004). While the measurement of a "successful integration" could be abridged to a review of ICT infrastructure and could be simply attained (such as in counting machines, noting bandwidth, calculating money

expended or deriving student: computer ratios), basic troubles of definition and measurement accrue in the integration of ICT (Fitzallan, N. 2004).

1.3 Integrating ICT: Making a Step Towards Change

Constructivist learning entails greater engagement and interaction for students, when the teacher is only a guide and enquiry is based on the learner. The target and progress is based on individual needs. Learners interact either via peer learning or individual learning and thanks to technology student have greater interactivity and engagement (Su, 2009).

The types of technology based learning can occur at any time and place; or can be self-paced where it happens at any time or can be content-centric with a little teachers-student interaction or learner-learner interaction or learner- focussed where the learner navigates learning. This type of learning is when technology replaces traditional face-to-face learning it is not text-based learning and the instructor does not have to be in the same room as the learner and is therefore technology delivered learning. This type of learning can be computer based learning which includes mediums such as Electronic-learning (Koller, Harvey & Magnotta, 2001).
Tinio (2002) stresses the propensity of ICTs in rising access and uplifting significance and value of education in developing countries. Tinio (2002, p.31) further affirms that:

> ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor.

In fact, ICTs have reformed the mode people work today and are currently revolutionizing education systems (Watson, 2001). Consequently, if schools educate children in yesterday's skills and technologies they may not be competent and cope with tomorrow's world. This is an adequate reason for ICTs to lead global appreciation

and consideration. For instance, ICTs are variable devices in supporting the achievement of one of the Millennium Development Goals (MDGs), which is attainment of universal primary education by the year 2015. Kofi Anan, the former United Nations Secretary General, argues that so as to reach the goal of Primary Education by the year 2015; we have to ensure that Information and Communication Technologies open the gate of education facets. This reveals the increasing request and ever more significant state that (ICTs) could obtain in education.

Albeit, ICTs play major roles on behalf of equalization strategy for developing countries, the practicality of the digital split the hole between those who have access to, and control technology and those who do not, make a big distinction in the use of ICTs. This means, that the preamble and blending of ICTs at different stages and diverse kinds of education is the most challenging consideration. Breakdown to meet the challenges would mean a more broadening of the knowledge gap and deepening of actual economic and social disparities among the developed and the developing countries. Thus, the purpose of this study is to discuss the advantages of integrating ICT, in the attempt to revolutionize and enhance the teaching learning experience in Algeria in order to hearten policy makers, school administrators, and mainly teachers to pay the requisite attention to incorporate this technology in their education systems.

Bearing in mind the variety of the key concepts, objectives and attempts that have been featured to the technologies in an educational background, the foundation and adoption of a basic framework has become critical so as to fulfill lucid and reliable actions to approve and enhance the students' learning. In this context, the attempt conducted with the frame of the learning outcomes project involved an outstanding opportunity to draw round an implemented view regarding the use of the technologies in education, with a vision to investigate the vital development of the individuals (Costa, F. 2010& Cruz, E. 2010& Cruz, E. & Costa, F.2011).

Focusing mainly on the challenge to come up with effective an efficient approaches to the curricular practices, in addition to realizing the need to obtain and build up the fundamental digital skills, the objective is primarily to develop and activate the budding of the technologies for the progress of a curricular organization

strategy with a transversal spotlight on "becoming a reference framework and a platform of articulation and integration of the ICT for the rest of the subjects or subject areas" (Costa. F et al,2012,p.1), that is, beyond an autonomous curriculum, the concept of learning outcomes in the scope of ICT tended to construct a "framework of competences to be included by each teacher in his/her specific area, from the viewpoint of the overall development of students, enabling the teacher to understand and decide, on solid grounds, what materials, for what purposes and how the ICT can be pertinently and appropriately used" (Costa, F et al, 2012, p. 931).

The idea began with the recognition and consideration of the extent of human behavior and on the exact scientific context wherein the technologies can append worth, but also followed a set of assumptions that mirrored some perceptions about ICT integration. Attention was driven, initially, to the ICT as a cross-subject educational area, whereby it was also supposed that the acquisition and enhancement of digital competencies should reveal throughout the whole of schooling. Then, the acquisition of ICT competencies was conceived as critical requirement in school at the onset of the 21st century, as a reaction to the challenges of the job market and society overall. Ending up with the first two assumptions, the ICT would be credited not only to an active position at the patch up of other points of knowledge, but most of all would be an opportunity of an approach for academic and societal development of individuals, since the younger generation's natural attraction with the digital technologies brings about better engagement and enticement of their development (Costa, F.et al. 2010).

1.4 ICT in Today's Education

Consistent with the Partnership for 21st Century Skills, there is a deep gap between the expertise and aptitudes that most students are taught in schools and what students must realize to do well in distinctive 21st-century societies and workplaces. Partnership for 21st Century Skills claims that financial, technological, informational, and political aspects have considerably altered the mode people live and work. As an effect of these alterations, students these days are anticipated to exploit their adult lives

working in a multitasking, technology-driven world. Therefore, to train students, we have to make sure that all students, no matter their economic backdrop, have equivalent access to this innovative technological world (Partnership for 21st Century Skills, 2007).

Students in the 21st century are exposed to diverse varieties of ICTs, counting computers, digital mobile devices (iPods, smartphones, etc.), and online games. Students get how to access the Internet; partake in social networks (Facebook, Twitter, etc.), send e-mails, swap and post images and videos. Hence, the teachers of such tech-savvy students should instil technology in teaching to hold their students' attention and boost their engagement in learning. Moreover, with a state-funded technology approval, teachers are more and more expected to infuse technology, not only to foster students' learning but also to improve professional practice and present positive examples for students, peers, and the society as a whole (Partnership for 21st Century Skills, 2007).

Students in today's' education are prepared to learn in this demanding, digital society which seems to be more significant to students and, eventually, more effective in training them for the future. Many countries around the world have figured out the fundamental role of ICT in enhancing the quality of education and began to introduce ICTs in education institutions by using different tools (Gulbahar, Y and Guven, I & Papanastasiou, E. C. and Angeli, C. 2008). For instance, the Australian Department of Education (2011) together with state and country governments has developed a national framework for the Digital Education Revolution. The objective of this framework was to "contribute sustainable and meaningful change to teaching and learning to prepare students for further education and training and for living and working in a digital world" (Jamieson-Proctor, R. M., et al 2006) .

This framework categorized some points for effectively and efficiently introducing ICT. An effective ICT integration requires making investigations and experiments about its use and effects, then, analysing and performing creatively. By means of personalizing and developing student learning; in addition to working cooperatively and interactively with different learning communities; ICTs would

support students to construct new knowledge; and to promote professional learning. Developing their ICT skills, students would be able to connect beyond the school and improve their learning. (Brady, L. 2011).

The Northern Ireland Department of Education (2011), too, derived from reflective monitoring with all of the mainstream stakeholders in educational institution, has adopted an innovative strategy for implementing ICT in education called Empowering Schools. The strategy places emphasis on the role of technology in improving and changing education in schools. The strategy also insisted on incorporating education technology across the compound set of school services, including curriculum improvement, school management, and professional improvement.

In fact, the Northern Ireland Department of Education (2011) with what is called the Empowering Schools Strategy (ESS) attempts to improve and personalize students' learning experience, assisting them to enjoy learning, enhance their achievement, and step up standards. Integrating ICT in 21st century education seeks to stimulate students' creativity, and to endorse their digital and visual literacy. It tends also to provide students with a suitable range of non-technological and online techniques of instruction, and to connect them to other students via online networks. It therefore, allows them to surmount the boundary between learning inside and outside school, to enhance collaboration between school, home, and community; and to enhance the students' standards in literacy (Jamieson-Proctor, R. M., et al 2006). All through the integration of ICT, students are supported to work on the competencies required to be economically dynamic in the global knowledge economy.

1.5 Upshot of Integration: Focus on Learning Outcomes

ICTs progressively promote every aspect of life (work, learning, free time, and welfare). Since ICTs are eminent instruments for information processing, students need to become proficient in their use, need to acquire the essential ICT competencies, and thus need to have access to computers and networks (Kok, 2007). Schools are information and knowledge providing institutions. Hence, ICT is supposed to be basic

information management device at all levels of academic systems, from classrooms to ministries.

Schools should deeply reconsider the present teaching practices and resources to construct effective learning environments and upgrade long-lasting pedagogical approaches also learning skills and performances for their students. ICTs are adaptable, and influential tools that can aid in this objective and should then be present in every classroom (Bordbar, F. 2010). Developed countries are integrating ICT in their education systems. In the United Kingdom, for instance, 'rising of standards' of teaching and learning has become related to the use of ICTs (Watson, 2001). In UK Minister for Education and Employment states, using digital technology for enhancing the transfer of education has great potential to lift standards and boost employability. Authorities bring up to this as "moving schools into an information age''. In this regard, Watson (2001, p. 253) stated:

> We are world leaders in ICT at schools, recognizing its vital importance to the future of all pupils. The figures show clearly the advances we have made in the field. It is an investment, not only in our children and in their lives in the 21 st century, but in our country's future as well.

The use of computers at an early age assists students acquire ICT skills that prop up as instruments in the education process. ICTs are having impacts on instructive approaches in the classrooms. Their encouragement to shift in teaching practices, school improvement, and community services is significant (Benson, p., 2008). The integration of ICTs in 21st century education have changed the traditional teaching learning methods and paves the way to more motivating and engaging learning environment (Bauer, J., & Kenton, J. 2005). When used properly, educational technologies have the potential to make students' learning more active, collaborative, and evaluative as illustrated in figure 1.1 in the next page.

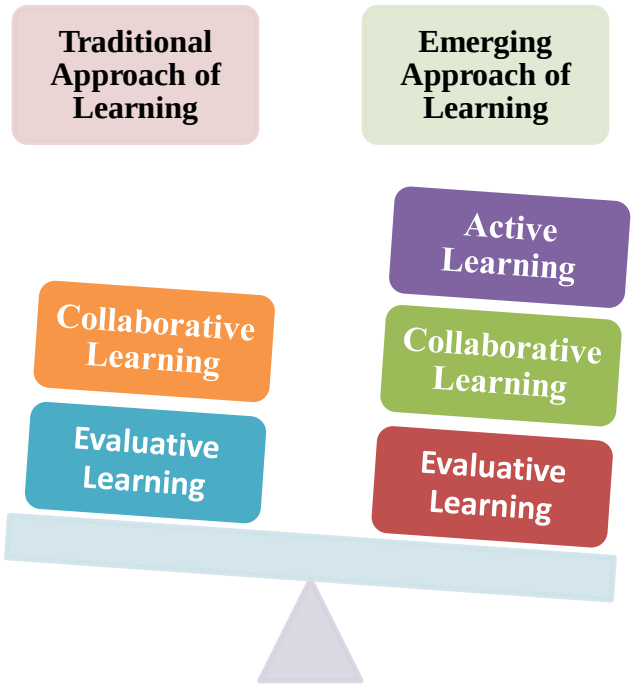

Figure1.1: Divergence between approaches of learning* (*adapted from Mikre. F, 2011).

a) Active Learning:

ICT enhanced learning drums up tools for analysis, computation and study of information in order to offer a stand for student inquisition, analysis and construction of knowledge. The students therefore, learn as they do and, whenever suitable they work on real-life problems thoroughly. Furthermore, "ICT makes the learning less abstract and more relevant to their life situations" (Mikre.F, 2011, p.6). Contrary to memorization-based or rote learning, that is the aspect of traditional pedagogy; ICT-enhanced learning endorses improved learner involvement. ICT-enhanced learning can as well be 'just-in- time' learning that the learners pick what to learn when they want.

b) Collaborative learning:

ICT-supported learning promotes interaction and cooperation amongst students, teachers, and experts no matter where they are. Even if idealizing real world interactions, ICT-supported learning offers opportunity to collaborate with students from divergent cultures, thus assisting to improve students teaming regarding

communication skills and global awareness. It supports learning all through the students' lifetime by extending the learning pace to comprise not just peers but also tutors and experts from different fields (Mikre. F, 2011). ICT- enhanced learning props up the treatment of existing data and the making of real-world invention sooner than the recurrence of received data. ICT-enhanced learning upholds a thematic integrative approach to teaching and learning. This approach extracts the synthetic separation between the assorted disciplines and between theory and practice, which typifies the traditional approach.

c) Evaluative learning:

ICT- supported learning is student-directed and diagnostic. Not like fixed text or print-based education, ICT-enhanced learning identifies the existence of different learning tracks to investigate and uncover rather than just take note and memorize.

The discussion above noticeably explains the role of ICTs in supporting the pedagogy of schooling in the information society. Hence, ICT is becoming more appropriate to understand and execute the up-and-coming pedagogy of constructivism (Voogt, 2003). In order to improve the process of teaching and learning, and to make optimal use of ICTs, shift in the pedagogic approaches and classroom strategies in addition to integrating ICT in teacher training and staff development practices directed by teacher motivation schemes are extremely essential.

1.6 The Challenging Role of ICTs in Teaching Learning Process

The use of ICTs in education is a turning point in the learning approaches and pedagogies. There is a prevailing conception that the incorporation of ICTs in education promotes a more constructivist learning and an enhancement in activity and more engagement of students (Volman, 2005).The use of ICT is raising major differences in the learning of students and teaching approaches. In the Western World, educational institutions invested in ICT infrastructures over the last 20 years, and students use computers more often and for a much vast diversity of applications (Volman, 2005). In instructional context, the use of computers seeks to assist student language learning; the notion is known as Computer Assisted Language Learning

(CALL). Computer Assisted Language Learning can be described as "the search for and study of applications of the computer in language teaching and learning" (Lim, 2003.p, 1).CALL is broadly regarded as the essential acronym to stand for studies related to second language and computer technology.

The integration of CALL into classroom has defied teachers to become conversant in new technologies and identify their outlooks of teaching. Along with Cramsch (1993, p.201)

> The enormous educational potential of the computer is confronting teachers with their pedagogic responsibilities as ever before. Never before have teachers so urgently needed to know what knowledge they want to transmit and for what purpose, to decide what are the more and the less important aspects of that knowledge, and to commit themselves to an educational vision they believe in.

In tandem with studies which consider motivation as a crucial factor in language learning, CALL practitioners have pointed out that computer environments themselves can inspire lots of students. Learners are enthused while using computer as they are less intimidated and therefore take more risks and are more unprompted (Becker, 2001). Considerably, for ICT teachers, computers have the potential to assist students with special needs (Bejar, 2010). Such as, in their utilization of screen readers, Braille devices or other assistive technology, teaching with computers in ICT moulded environment has three types:

A. Instructional CALL: learners were reliant on curriculums of teaching that professionally provided for example grammar and pronunciation (Fox. J, 1982).

B. Communication CALL: instructions attempted to put learners in autonomous relationships with the computer in an interactive task with application. Learners are anticipated to work cooperatively and exploit the computer as a box implement for group project work. Far from ideal, speech technologies for language learning are speedily expanding as instructors endeavour to make students' learning more appealing within the computer environment (Kook .V, 1991).

C. Integrative CALL: Instructors are heartened to undertake a less intrusive role as the use of internet might promote stress and detract from language learning objectives. Professional development for teachers, mainly, those who have faith in and can apply socio collaborative hypotheses represented in integrative CALL, is an ongoing challenge to the instructive community (Kenning. M, 1990).

A strong reviewer of discussion on the effect of technology could only reinforce ICT, with all its forms, and budge it further away from a propensity to raise someone difficulty to use technology in education.

1.6.1The Effect ICTs on Students' Learning

The process of integrating ICTs in the teaching learning process attempts both to include the diverse aptitudes of language learning and to implement the technology more entirely into language teaching (Aydın. S, 2007). For this endeavour, ICT materials (for example computers, Interactive White Boards (IWBs), multimedia software, network processes ect) offer a variety of informal, communicative and publishing materials (Brooks-Young, S.2007). Studies and practice put forward that aptly integrating ICT can subscribe considerably to:

a) ***Experimental learning:*** ICTS tools, such as the World Wide Web, enable students to embark upon a massive quantity of human experiences. They can therefore learn by exploring things themselves. They turn out to be reactors not only receivers of knowledge, they improve thinking skills and select what to act upon (Warschauer, M. 2004).
b) ***Motivation:*** ICT devices, such as computers, are mainly well-liked among students either because they are related to enjoyment and diversions or because they are viewed to be trendy. Students' motivation is then boosted; particularly whenever a diversity of activities is proffered which makes them feel more autonomous (Warschauer, M. 2004).

c) ***Enhanced Students' Achievement:*** technology based instruction can assist students reinforce their linguistic proficiencies by positively affecting their learning perspectives and by assisting them construct self teaching strategies and endorse their self-assurance (Brooks-Young, S. 2007).

d) ***Authentic Material for Study:*** ICT materials provide data 24 hours a day (Warschauer, M. 2004).

e) ***Creating Interaction:*** the interactive feature of ICTs, for the example, the access to web pages, cracks the linear flow of teaching (Brady, L. 2011). By sending e-mails, students can correspond with people they have never encountered. They are able to also interact with their own colleagues. Also, some internet activities provide students with positive and negative feedback by automatically assessing to their online assignments (Brady, L. 2011).

f) ***Individualization***: with the use of ICTs, introvert or timid students can be extremely promoted by individualized-students-centered collaborative learning. High flighers can also fulfil their full possibilities without preventing their classmates from working at their own pace. Furthermore, in large classes it is not easy for the students to get speaking communication. The use of some ICT tools namely multimedia sound lab enables students to excitedly participate in classroom activities (Brooks-Young, S. 2007).

g) ***Independence from a single source of data:*** though students can keep using their books, they are given the opportunity to get away from "canned knowledge" and find out plenty of data resources. Consequently, their education meets the need for interdisciplinary learning and multicultural world (Warschauer, M. 2004).

h) ***Global understanding***: it means where a foreign language is learned in a cultural framework. In a world where the exploitation of the internet is progressively extensive, an English language teacher's role is to alleviate students' access to the web and makes enjoy the atmosphere of global classroom, and share interaction on a global level.The integration of ICT technology exceeds time and space and develops more vivid, visual, and

genuine environment for learning. It excites students' initiatives, saves class time and amplifies class information (Brooks-Young, S. 2007).

1.6.2 Effects on Teacher's Performance

Studies have been made to highlight the role of the teacher to support, engage, and train students more readily than just transmitting knowledge. The continuing expansion of using computers has shifted from learning about computers, to learning computers, and lastly to learning with computers (Volman, 2005).

Recently, there has been an increasing interest to identify how computers and internet can best be utilized to attain a successful and effective teaching learning process. Due to the change of theories underlining learning processes, ICTs are expected to uphold learning activities. ICTs are identified as a subject for study, a trait of a discipline or a career, and devices of instruction (Voogt, 2003). As a device of instruction, ICTs outfit to match and reach the rising pedagogy of constructivism. Besides, Voogt (2003) differentiated between traditional learning environment and constructivist approaches. The former considers learning as transmission of knowledge to students, which is the main role of the teacher. In contrast, the constructivist approach considers learning as authentic and learner centered. The integration of ICT attempts to support the constructivist approach, where the teacher can plan virtual and personal learning environments to students.

Currently, the traditional teaching methods and environments are not well-liked while multimedia technology fitting into audio and visual animation effects makes us more exposed to data. Moreover, multimedia technology provides a sense of authenticity and practicability, which critically fosters students' interest and impetus in study and their engagement in class activities. In this regard, Hulpia (2004, p.11) points out:

> Through Multimedia and network technology we can offer students not only rich, sources of authentic learning materials, but also an attractive and a friendly interface, vivid pictures and pleasant sounds, which to a large extent overcome the lack of authentic language environment and arouses students' interest in learning.

ICT constructs a context for language teaching and makes the class dynamic and attractive. Throughout the process of multimedia instruction, sounds and pictures can be put together, the fact which boosts the initiative of both teachers and students and enriches the content of classes.

It is generally believed that ICTs have critical potential to bring change in education practices, school environments, and community services. Policy makers and project leaders need to reflect in terms of input factors that can collaborate to pore over the real impact of integrating ICT in education. In light with national policies and programs associated with changes in syllabus, pedagogy, assessment, and teacher training, the preamble of computers is more estimated to prosper in better learning of students and effective performance of teachers (Kozma, 2005).

Education policies have got to reflect alternating and novel teaching patterns that ICT can afford a more effectual, pertinent, and adaptable approach of learning and teaching. Policies should allow for the training of teachers to integrate of ICTs in education. Teachers need to competently re-plan learning environments enabling students to transfer their newly acquired ICT skills to other applications to integrate in a rich ICT environment (Bai, H., &Ertmer, P.A. 2008).

Most educational policies point out the must for ICT infrastructure but they overlooked the must for local educational content. The improvement of instructional context remains an abandoned area, upsetting investments in hardware and ensuing in a serious economic and educational breakdown (BECTA, 2004). The focal point of ministries of education should be on how they employ ICTs to recompense for the points that are missing in education, that is, well-trained teachers and the funds to pay for expensive equipment. The undertaking is to reflect on technological alternatives that, at low cost, give to students the imagination and originality of a few outstanding teachers (BECTA, 2008).

1.7 Factors Influencing the Use of ICT in Education

Many investigations have tackled the basic factors influencing the successful utilization of ICT in teaching-learning process. Studies reveal that technical,

individual, professional, and managerial factors should be mulled over prior to the process of integrating ICT (Sherry, L., et al, 2002). Researches categorized three technical traits that are likely to influence the effective integration of ICT (Russell, M.et al, 2007& Rogers, E.M. 2003). They involve content features, technical reflection, and professional aptitude as aspects influencing the integration process. Besides, factors such as teacher-level, school-level and system-level have been identified as significant aspects that can have an effect on the use of ICT in education (Slaouti, D. Et al, 2007& Balanskat, A, ET all, 2007).

The process of integrating ICT in teachers' classroom instruction is, as well, influenced by teachers' level of proficiency to use technology in addition to their perceptions and outlooks to adopt technology (Chen, C. H et al. 2008). Factors related to teachers' proficiency comprise teachers' perspectives and outlooks, ICT proficiency, ICT competencies, teaching experience, gender, education level and professional improvement. Each factor is tackled in depth in the following section.

1.7.1 Teachers' Perspectives and Outlooks:

It refers to teachers' tendencies to act in response to a device, a person, or an experience in a positive or negative way (Ajzen, I, 1988). To effectively introduce ICT in education, experts and decision makers count on teachers' positive attitudes and perspectives. They, hence, consider teachers' outlooks as a major factor that inspires a successful integration of ICT (Hew, K. F., et al 2007 & Keengwe, J., et al 2008). When teachers have constructive outlooks to use educational technologies, they deliberately provide supportive standpoints to utilize ICT in the teaching learning process.

In fact, the connexion between computer supported perspectives and the utilization of computer becomes a subject of interest in several research studies (Sang, G et al, 2010 & Tondeur, J. et al,2008). Teachers' outlooks about the use of computers affect their own aptitude to use technology, and also their visions about adopting educational technologies in their performances (Huang, H. M., et al, 2005). Here again, teachers' perspectives have a great impact on the adoption technology in

learning environments. Aspects related to characters and temperaments of teachers are conceived decisive to the adoption of ICT (Paraskeva, F et al, 2008).

Studies have palpably exposed that the appreciation of teachers to integrate technology was tightly related to their perspectives and outlooks about the use of ICTs in the teaching process (Knezek, G et al, 2002). Research illustrated that teachers' positive attitudes towards the use of ICT encourage them to exploit it more frequently in their classroom instruction (Paraskeva, F, et al, 2008). In particular, beliefs about the importance of ICTs can extremely influence teachers' attitudes about the use of ICT in the context of teaching.

In addition, teachers' use of computer is based on their personal competencies to work with it. Teachers who are deemed competent enough to use computers are expected to exhibit positive perspectives about computers (Rozell, E.J, et al, 1999), that is why positive outlooks tend to improve ICT integration in teaching learning process (Tondeur, J, 2008). For fruitful outcomes in teaching practice, teachers have to adopt positive perspectives toward an innovative teaching and learning framework (Woodrow, J. E., et al. 1992).

1.7.2 ICT Competencies:

Investigation has been conducted on teacher's competencies unveiled to have an immense influence on the use of ICT. Self- assurance is recognized as a confidence in one's own skills to complete an activity; and is critical to make a challenge and reach an aim (Bandura, 1997). Actually, self- assurance is the self belief that a person has in his/her competencies to do what he/she seeks to do. So, teachers' confidence refers to teachers' personal vision of successful use of ICT for academic purposes and the extent to which teachers are skilful enough to handle the difficulties and challenges of integrating ICT (Peralta, H, et al 2007). Teachers' ICT competencies have an effect on their adoption of ICT (Liaw, S., et al 2007).

Furthermore, studies revealed that teachers' competence to use computer boosts successful integration of ICT (Yuen, A et al 2008). Teachers' competence to use ICT is a basic aspect for effective integration of ICT in teaching (Knezek, G. et al, 2002). If

they lack self-confidence, teachers would unconsciously and deliberately feel reluctant to use ICT (Jones, A, 2010). Also, anxiety to act up and shortage of ICT competencies are considered as main reasons for teachers' lack of self-confidence to appreciate and integrate ICT (Balanskat, A., et al, 2007).

1.7.3 ICT proficiency:

Computer proficiency is defined as the ability to deal with a diversity of computer applications for different objectives (Tondeur, J, 2008).Teachers' computer proficiency is a major element in the process of integrating ICT in education (Bordbar, F. 2010). Teacher's negative attitudes towards the use of technology tend to increase and fuel their lack of competencies and aptitudes to utilize ICT (Al-Oteawi, S. M. 2002). It seems that experienced teachers (competent users of ICT) have better confidence and hence positive outlooks to utilize ICT proficiently (Peralta, H., et al 2007). Teachers' competence depends then on their own confidence which is in turn associated with their aptitude and willingness to exploit computers in the classroom (Jones, A. 2010).

1.7.4 Teaching Experience:

Even if some few research studies affirmed that teaching experience did not influence the use of ICT in teachers' performance (Niederhauser, D.S et al 2001), different studies claimed that effective use of ICT is affected by teaching experience (Wong, E.M.L. et al, 2008 & Giordano, V.2007 & Hernandez-Ramos, P. 2005). According to Gorder, L. M (2008) teacher's experience is significantly related to the actual use of technology. Effective use of ICT was related to teachers' competence to use technology and confidence to structure instruction along with student needs (Ibid). Baek, Y.G (2008) reported that experienced teachers are less expected to use ICT in teaching.

Similarly, the U.S National Centre for Education Statistics (2000), reported that prospective teachers were more expected to use technology in their teaching than the experienced teachers. The reason behind this difference may be that young teachers are more practised in utilizing technology. Some studies focused on the relations between specific demographic variables such as teaching experience and subjects

taught with the use of technology. One such study was Zidon, S et al (2002) who underlined the weak relation found between teaching experience and technology integration. Simultaneously, a meta-analysis and review of 81 research studies by Rosen, L.D. et al (1990) revealed that participants' teaching experience does not stop computer anxiety and many prospective teachers demonstrate unwillingness, anxiousness, and unease to use technology.

1.7.5 Gender:

Different studies have tackled the effect of gender differences on the use of ICT in education (Kay, R. 2006).Researches about teachers' gender and use of ICT uncovered that female teachers lack proficiency to use computer due to their restricted technology access, limited competencies, and shortage of attentiveness (Volman, M et al. 2001). Studies revealed that male teachers use more ICT in their instructions more than their female colleagues (Kay .R, 2006 & Wozney, L., et al, 2006). Jamieson-Proctor, R. M., et al (2006) conducted a study on teachers' adoption of ICT in schools in Queensland State. Results from 929 teachers disclosed that female teachers were utilizing technology less than did their male colleagues.

Nonetheless, some studies claimed that gender variable was not a determinant factor for ICT integration (Norris, C., et al 2003). In his research study, Kay, R. (2006) uncovered that male teachers had relatively higher levels of computer proficiency and aptitude to integrate ICT, but there was no difference between males and females regarding ICT skill and competencies. He adds that good training on technology can reduce gender variations.

1.7.6 Education Level:

It is perceived that people with less than secondary school education are essentially less eager to use computers for a diversity of reasons and this sample is most found in Italy and Bermuda (Veenhof .B et al, 2006). As well, dimensions that determine individuals' use of and perspectives about ICTs are more probable to increase with the "literacy skills" of teachers (Borghans, et al 2004). Still what accurately delineates literacy is debatable in the background of technology integration,

the concept seeks to consider the diversity of technical skills and trainings. A study in Britain disclosed that more educated people have advanced ICT skills. The study claimed that individuals with more education favour to use computers, making it difficult to recognize whether education or deployment has the major influence on ICT skill levels (The National Centre on Adult Literacy Technical Report, 2005).

1.7.7 Professional Improvement:

Teachers' professional improvement is an important aspect in the process of integrating ICT in education. Some studies have exposed that, no matter if prospective or experienced, ICT-related training programs enhance teachers' aptitudes to use technology (Bauer, J., et al 2005 & Wozney, L., et al 2006) and influence teachers' outlooks about technology (Hew, K. F et al 2007 & Keengwe, J et al, 2008) and help teachers reshuffle the task of technology and realize how new technology materials can be significant to student learning (Plair, S et al 2008). In a study carried out with 400 high school teachers, it was found that teachers' professional development and the efficient support of quality practice are among the most indicators of effective integration of ICT (Louw, J., et al 2008).

Besides, training sessions tend to focus on ICT pedagogical training more than technical issues. In fact, helpful technical support can hold up teachers work with technologies. Several studies divulged that proficient training program permits teachers to incorporate technology and renovate some teaching practices (Brinkerhoff, J.2006 & Diehl, and D.E. et al 2005). Lawless, K., et al (2007) found that teachers could use ICT if training sessions would crack down on issues and values of integrating ICT. In addition, teachers' perceptions about their performance and utilization of ICT to improve students' learning outcomes are based on teachers' knowhow level, self-assurance and perspectives about ICT (Louw, J. et al 2008).

If teachers accept to use technology according to new teaching practices provided through professional training, they can enhance their teaching practice and students' learning (Lawless, K. et al 2007). Manifestly, it is imperative to train teachers integrate ICT so that to improve the teaching learning process. With ICT

training programs, teachers learn, share and cooperate with colleagues in the process of implementing ICT (Levin. T et al, 2008).

Other factors related to professional development can also influence the process of integrating ICT. They include: Access to ICT, technical support, leadership support, anxiety to use ICT, government policy on ICT literacy and technology attributes.

A. Access to ICT

Infrastructure and resources in learning institutions are basic requirements to the integration of ICT in the teaching learning process (Plomp, T. et al 2009). A study by Yildirim, S. et al (2007) disclosed that access to technological resources is one of the major factors to successfully integrate ICT. Effective integration of ICT in education is founded mainly on the availability and accessibility of ICT resources such as hardware, software, etc. Evidently, if teachers cannot access ICT resources, then they will not use them. So, access to computers, adapted software and hardware are essential conditions for effective integration of ICT.

B. Technical support:

A study disclosed that institutions in Britain and the Netherlands have scrutinized the significance of technical support to motivate teachers use technology in their teaching practice (Korte .W et al, 2007). Computer breakdown leads to disruptions and if there is shortage of technical support, then the intent of integrating ICT will not be attained and hence teachers would be reluctant to use ICT (Peralta, H, et al. 2007). As well, it is fundamental to supply teachers with technical support for effectual use of ICT (Yilmaz, N.P. 2011). Thus, the absence of technical support will evolve disturbance, refusal and even phobia from the part of teachers to integrate ICT (Yilmaz, N.P. 2011). Accordingly, the lack of technical support is said to discourage teachers from appreciating and adopting ICT in teaching.

C. Leadership support

As infrastructure support is fundamental, school technology leadership is a determinant factor of teachers' use of ICT (Anderson, R. E., et al 2005). It is regarded that a leader teacher, who integrates technology, designs and also shares a common attitude with other teachers in order to hearten them integrate technology into their

teaching (Yee.D, 2000). It has been believed that to successfully utilize ICT, leadership support is indispensable to guide a coherent technology plan in schools (Lai, K.W., et al 2004).

Study on the effect of ICT on primary school teaching in United Kingdom highlighted the significance of good leadership (Becta, 2004). The study came up with five factors that were crucial to be provided in schools if ICT was to be employed properly. These factors included ICT resources, ICT teaching, ICT leadership, general teaching and general school leadership. In this context, Lai & Pratt (2004) believed that:

> Although ICT opportunities are typically provided by the classroom teachers, the quality of leadership and management of ICT in a school is crucial to the provision of good ICT learning opportunities. As the quality of ICT leadership improves, so does the percentage of schools providing good quality ICT learning opportunities (p.462).

Alongside the perception of Lai and Pratt about the significance of leadership support, a study conducted on factors that influenced effective implementation of ICT in eight schools in Hong Kong and Singapore. Findings revealed that effective integration of ICT is influenced by leadership support of cooperation and practice in addition to teachers' approach of student-centeredness (Wong, E. et al, 2008). Studies exposed also that various levels of leadership such as primary leadership, organizational leadership and technical leadership, are considered as factors that have an effect on successful use of ICT in educational settings (Anderson, R. E., et al 2005). These factors of leadership would help out teachers to share knowledge and experience with colleagues so that to integrate technology in teaching.

D. Anxiety to use ICT

Among the major aspects between academic establishments in teachers' integration of technology is the considered anxiety and pressure to use technology (O"Dwyer, L. M.et al 2004& Williams, M. D. 2003). This means that teachers are affected by others' experiences of integrating technology in classrooms. In the 21st century, teachers still come upon rising pressure to use technology in teaching (Girod,

M.et al 2001). It is hence critical for teachers to recognize how to cope with this pressure to use technology (Woodrow, J. E.1992). Researchers found that the more teachers were anxious to use technology, the more they utilized it in their instruction (O'Dwyer, L. M., et al 2004 & Russell, M., et al, 2003). In this concern, a study reported that pressure to use technology is positively associated with teachers' use of technology for teaching, planning and managing the lesson (O'Dwyer, L. M., et al. 2004). It seems, in fact, that there are some advantages of anxiety and tension to use technology. However, if teachers are anxious and fearful to change their teaching methods and approaches when adopting new technologies, they are more likely to avoid using technology (Ertmer, P. A. et al, 2005).

E. Government policy on ICT literacy

Policy and planning are very important to identify the advantages of utilizing technologies of education (Omwenga E.I., et all 2002). Educational institutions and decision makers have major role to facilitate, integrate and evaluate the use of ICT for learning and teaching. It is further claimed that, in some countries such as Sri Lanka and the Pacific Islands, due to the inaccessibility of computers the charge of internet is high (Ibid). Other countries, such as Australia, Malaysia and Japan, do recognize the potential of ICT and adopt some ICT strategies that go beyond actions to support ICT plan of integration. These countries have an elevated economic rank and supply sufficient ICT resources to their population.

F. Technology traits

Technology characteristics put forward that perception of innovation, as a trait made by technology, is a crucial factor that affects ICT integration. It is believed that "innovations that offer advantages, compatibility with existing practices and beliefs, [with] low complexity and potential reliability will have a more widespread and rapid rate of integration" (Dillon & Morris, 1996, p.6).

Some novelty features of compatibility, suitability and visibility are conceived to have an effect on the level of integrating ICT (Rogers, 2003). It is necessary to accept change if we are to adopt successful integration of ICT. Teachers' acceptance and approval of change is truly a crucial aspect to effectively integrate technology. A

study surveyed 700 Nigerian secondary school teachers' use of ICTs and provided suggestions for upgrading the use of ICT in education. The study revealed that most teachers conceived ICT extremely helpful as it makes teaching and learning process more engaging and effective (Adika & Adeyinka, 2007).

Another research studied the structural equation modelling system to inspect the effects of technology resources and computer characteristics on teachers' instruction (Usluel et al, 2008). The research included 834 teachers from 22 universities in Turkey. Findings reveal that about 61% of variance of ICT integration was explained by ICT resources and computer characteristics like accessibility, availability and ease to use.

1.8. Measuring the Efficiency oF ICT Related Courses

McKenzie (1998) gave a motivating congruence concerning teacher performance with the deployment of ICT. He declared, "Installing a network without providing robust professional development is like trying to plant a meadow on the school playground by tossing seeds onto the asphalt. If we fail to cultivate and fertilize the soil, we will be lucky to raise any flowers at all". It is truly ineffective to possess ICT in schools without training teachers in its beneficial use and coaching them the significance of utilising ICT (Brush et al., 2003).

In this regard, Brand (1998) quotes, "If students are going to be prepared for a technological society, they must be taught by confident and skilled teachers. Some researchers advocated to the practitioners and teacher education establishments likewise that the ideal method to promote teachers to make use of computers in the classroom was to boost rank of proficiency. This can be attained by affording some computer literacy courses that are planned on the basis of the individual's level of confidence, anxiety, and aptitude (Yildirim, 2000).

At the outset of educational computing teacher education programs adopted professional development required for technology throughout in-service trainings. Instructors attended workshops so that to get advanced degrees from graduate school. In 1983, when the report A Nation at Risk advised that students need to take advanced

computer course, it was still strange for a pre-service program to provide technology training for new teachers (ISTE, 1999).

Since the integration of technology into society and the place of work, educational institutions have worked hard so that to improve the quality of teaching, reflecting on the diversity of technologies that are accessible to improve human potential and perk up teaching. Similarly, teacher education programs have also worked hard in order to identify how to train prospective teachers for the subsequent century. It is fundamental for teachers to have adequate technology training all through their pre-service teaching if they are to reach the needs of students (Yildirim, 2000).

ICT related courses should be an example of real classrooms. The author declared the primary and inevitable requisite for the effective integration of the use of ICT is to train teachers at all levels, mainly during their pre-service education. Instructing them to use ICT in in-service training can be a difficult task for many reasons. For instance, teachers were "scared" of the new and unknown. The second essential requisite for the effective integration of the usages of technology is that the usage of ICT is said to be developed by teachers and that they are prepared to use it once they become full time teachers (Davenport, 1995). ICT related courses should be admitted for their roles in assisting students to reach this upshot. By training future teachers to use ICT, it is anticipated that they will benefit this knowledge and skills in their classroom instructions (Evans and Gunter, 2004).

ICT should be implemented in the whole curriculum, and contributors in all parts of teacher education should assist to expand and put into practice an incorporated plan that supplies students with the models, counsellors, training, and knowledge required. Dell and Disdier (1994) maintained four major points for successful ICT training: (1) educational technology training requires to be implemented into the whole teacher education program in order that effectual technology integration is developed for future teachers; (2) training should relate technology with curriculum; (3) training should afford proactive practice hence teachers feel comfy, and (4) training needs to be thoroughly (Willis, 2001) .

With the aforementioned effects, many action plans were taken up at national and international levels. The majority of teacher education programs have been reshaping their curricula in order for future teachers to be proficient users of novel technologies as they become teachers. In many countries, there are particular courses or sections for training future and new teachers to use ICT on the whole and in their field of specialities. Ever more, ICT related courses such as computer literacy, basics of IT, and educational technology, become essential courses within the programme of teacher training. Though, there are still lots of countries which merely have courses for future teachers which may be optional (Yildirim, Kynigos, Potolea, Dumont, & Aufenanger, 2003).

In Turkey, Higher Education Council (HEC) is in charge for planning, organization, and management of higher education. In 1998, it adopted new teacher education courses for schools of education, and ICT has been implemented. "Computer" and "ITMD" courses became required in both primary and secondary pre-service teacher education courses in the new curricula. The major target of the "Computer" course is to help out future teachers to acquire essential computer skills in frequently utilized computer applications, for example word processors, worksheets, telecommunications, and power point presentation programs. In the "ITMD" course, new teachers obtain knowledge and abilities for a diversity of teaching technologies, and exploit and assess technology-based instructional materials (HEC, 1998).

A research by Yildirim (2000), focused on the outcomes of the educational computing course on new teachers' perspectives. The study revealed that ICTRC were helpful for them generate positive perspectives by: (1) making them more comfy utilizing applications, (2) helping them become more confident, (3) enhancing their perception of computers and their applications, and (4) demonstrating how computers could be introduced into the teaching learning curriculum.

The literature has various research studies about assessing the efficiency of ICT related courses (Molebash, 2001; Tınmaz, 2004; Toker, 2004). A study stated that about one-third of teachers considered themselves well trained or very well trained to utilize computers and the Internet for classroom instruction, with less practised

teachers pointing out they felt better trained to use technology than their more practised co-workers. For several teaching activities, teachers who stated feeling better trained to utilize technology were usually more expected to utilize it than teachers who stated that they felt not trained (USDE, 2000).

Sahin (2003) advocated a constructivist approach to improve the efficiency of instructional technology and instrument preparing course. She collected data from 80 Turkish prospective teachers in primary teacher education curriculum. Her results revealed that prospective teachers desired to be dynamic in the process of instructional technology and instrument preparing course. The participants believed personal preparation to use instruments and the feedback of scores were extremely significant. It can be drawn from her investigation that ICT related courses can be more effectual and successful if the courses are provided in a constructivist approach. Prospective teachers appreciate to choose and use instructional tools by their own (Sahin, 2003).

When evaluating the effectiveness of ICT related courses, there are lots of benefits and challenges as well. Duran (2000) stated that due to the drawbacks of unconnected technology courses underlining only the conceptual issues about technology, this kind of course does not meet teachers' needs associated with the utilization of ICT in their prospect vocation. The need is for more convenient courses which envelop the usage of technology in educational environments and classroom supervision plans (Duran, 2000).

Molebash (2001) investigated a technology-enriched elementary social researches method course. He collected data by means of classroom observations, contributor interviews, document analysis, and videotaped microteaching lessons from 23 future teachers. His findings showed that the course can play a central role in training future teachers to successfully assimilate ICT into their classroom instructions. Nevertheless, he advocated that it does not assure that future teachers will use ICT in their prospect classrooms. He considers that constructivist outlooks and teachers' instruction played a major role in success of ICT related courses (Molebash 2001).

1.9Challenges and Barriers to Integrating ICT in Education

Regardless of the factors that support teachers' integration of ICT in classrooms, several studies carried out experiential research on factors (barriers) that dishearten teachers' use of ICT. Balanskat et al (2007) categorized the factors that hinder teachers from ICT use into teacher- level, school-level and system-level barriers. Teacher-level barriers comprise lack of teacher ICT proficiencies; shortage of teacher self-assurance; absence of academic teacher training; need of follow-up of innovation and lack of training programmes. The school-level barriers include lack of ICT infrastructure; outdated or badly retained hardware; lack of appropriate didactic software; narrow access to ICT; inadequate project-related experience; absence of ICT plans of integration into school's policy and the system-level barriers comprise stiff construction of traditional pedagogical systems; traditional appraisal; restricted curricula and restrictive managerial form.

Yildirim (2007) carried out a survey on factors that dishearten teachers' use of computer technology in classrooms. It was found that the main usage of technology by educators was for lessons preparation and assessments rather than ameliorating students' performances. The study also exposed that hampers to the use of technology embrace crowded classes, inadequate training, insufficient technical and educational support, unbending school syllabi, lack of motivation and engagement, lack of strong leadership and inefficient collaboration among teachers. Slaouti & Barton (2007) also reported that shortage of access, time pressures, absence of advisers and options for training have impact on teachers' integration of ICT in the teaching and learning processes.

Likewise, a study used qualitative approach to gather and study experiential data on factors obstructing instructors from using ICT in teaching in Khanya schools in South Africa (Chigona,2010). Fourteen teachers were selected from four high schools and interviewed. The research brought to light that ineffective training, shortage of access to computer laboratories, absence of technical support and insufficient technology resources were factors disheartening teachers from integrating ICT into their teaching.

Another study investigated teachers' confidence and proficiency in the use of ICT in teaching (Peralta & Costa 2007). The quantitative and qualitative research arbitrarily selected 20 teachers from Greece, Italy, Spain, Portugal and the Netherlands. The findings revealed that shortage of teachers' time to acquire new aptitudes, old ICT equipment, packed classes, shortage of technical and pedagogical support and absence of cooperation among teachers were restraints to educators' confidence and competency in the deployment of ICT. Taking into consideration the extent to which these obstacles affect individuals and institutions may help in identifying how they are to be undertaken (Becta, 2004).

ICT is an educational technology that supports and assists the process of teaching and learning yet, it is not always beneficial as there are some limitations. Many people from inside and outside the education scheme conceive ICT as "Panacea" or the major significant solution to school troubles and developments. Nevertheless, many conditions can be regarded as limitations of ICT utilization in education. The limitations can be classified as student related, technology related and teacher related. All of them potentially limit the advantages of ICT to education.

1.9.1 Students' Related:

Conversely, the limitation of ICT integration in education is associated with student behaviour. Suitable utilization of computer and the internet by students have noteworthy positive impacts on students' attitude and learning outcomes. However, it is very frequent to notice limitations associated with student behaviour. Students tend to use wrongly the technology for diversion and have less time to learn and study. It is conceived that online gaming, utilization of face book, chat rooms, and other communication canals as apparent disadvantages of ICT use in education, because, when switching to these sites, students may detract from learning. Internet access at home, for example, may be a disruption due to chat rooms and online games, decreasing the time required to do assignments and learning (Dogan. M, 2010). Then, the effect of accessibility of ICT on student learning powerfully depends on its particular usages.

If ICT is not suitably employed, the drawback will exceed the benefit. For instance, while students utilize the internet, it may baffle them by the flow of data to

pick from. Consequently, the teacher spends more time to control students from websites unconnected with the learning subject. Subsequently, for caution, it is critical to recognize the main limitations of ICT use in education as connected to students' attitudes. The diverse literature in this respect recognizes that the use of computers can restrict students' imaginations; also, over-dependence on ICT can limit students' critical thinking and analytical aptitudes. Students generally have a surface comprehension of the data they download, and may have less possibility to develop oral skills and hand writing. Unsuitable use of ICT may be intricate for weaker students, as they may have difficulties with working autonomously and may require more prop from the teacher. The other limitation of ICT implementation in education is technology related (Dogan, M. 2010).

1.9.2 Technology Related:

The high fees of the technology, virus attack of computers and software, intrusions of internet connections, and poor provision of electric power are amongst the technology related limitations of ICT deployment in education. Moreover, the lack of access to resources is considered as a major barrier to the use of ICT in education. Considering its significance which was highlighted in a number of studies, we are going to underline this factor as a critical obstacle to the use of ICT. Technology related barriers encompass lack of access to ICT, lack of hardware, poor organisation of resources, poor quality of hardware, inappropriate software, and lack of personal access for teachers**.**

A) Lack of access to ICT

Proof of effective practice in using ICT is often achieved in education institutions that have good quality of ICT equipments (Ajayi, L. 2009). Though, lack of computers and software can critically restraint teachers' performances in the classroom regarding the integration of ICT. The significance of institutions being well equipped in ICT resources is also emphasized by a Becta publication, "Primary Schools, ICT and Standards" (Becta, 2003).

This research, which investigated the association between schools' use of ICT and pupils' attainments in examinations, provided compelling evidence to reveal that those institutions which were well resourced in ICT are likely to have better attainments than

institutions with substandard levels of ICT. The study was capable of demonstrating that this association was not just an effect of the higher attaining schools having better socio-economic conditions, and also that it was not as an effect of those institutions having better quality management. The shortage of good ICT materials in an institution, then, will not only impede teachers from effectively integrating ICT in their instruction, but it tends also to have a negative impact on pupils' attainment.

The issue of teachers' access to ICT resources is an intricate point, and with the intention to comprehend this more, it is useful to divide it into some 'sub-barriers'. The incapability of a teacher to get access to ICT materials may be the effect of one among a number of factors, and not only because the hardware or software is not available within the education institution. In the Becta survey of teachers, for instance, when respondents recognized access to resources as a difficulty and when 20.8% of responses were related to lacking resources, they were in fact bringing up diverse types of access difficulties.

Some respondents were definitely bringing up a lack of resources actually accessible, while others were bringing up the poor quality of the equipments that were accessible (Becta, 2008). In some cases, teachers' with adequate measures of high-quality materials were still having problems as a consequence of the management of those materials. Some respondents also underlined the need for instructors to have enhanced access to ICT for their own utilization, as for planning and preparing lessons.

B) ***Lack of Hardware:***

In an international investigation of the barriers to the integration of ICT in education revealed that the most often stated problem when teachers were asked about barriers when integrating ICT was the inadequate number of computers accessible to them (Pelgrum, 2001). Study came up with comparable results, with several surveyed educators mentioning that the number of computers in their classrooms was inadequate, and that if educators were to keep integrating ICT into their instruction then they called for the suitable hardware and software to train them first, and then pilot their students appropriately (Guha, 2000).

The research revealed also that when teachers tried to use computers in their classroom instruction, they were encumbered by a shortage of resources. This put forward that in addition to being an obstacle to educators' first exploration of ICT; lack of hardware can also be an obstacle to the further improvement of ICT in inventive and original ways.

It may be unexpected to mention that, in spite of some attempt in the UK to enhance the level of ICT resources in education institutions, a large number of respondents to the Becta survey still considered a shortage of hardware as a potential ICT obstacle (Becta, 2008). This would support the findings of a study by Pelgrum (2001) which illustrate that even in those countries where the rate of using computers was not very low, surveyed teachers still complained about the shortage of computers. This issue can be caused by bad management of resources, rather than an actual shortage of computers in institutions. This pushes us to think about a second barrier to ICT related to resources which is poor organisation of resources.

C) ***Poor Organisation of Resources:***

If teachers, in institution with low use of computers, are still complaining about lack of computers, then it could be that those teachers and their school administrators have to consider whether or not they are supporting the exploit of the accessible resources (Alhawiti, M. 2013). In some cases, it is the management of materials, rather than the concrete shortage of them, which is constructing an obstacle to the exploit of ICT by teachers. Besides, the quantity of computers alone does not automatically assure adequate access, and that it is significant to determine the right number and proper varieties of technology so that teachers and students can successfully exploit ICT resources (Plair, S. 2008).

The education institutions' policy to shift towards increasing computerized classroom is a significant problem which may add to this hamper. It is supposed that institutions' hardware is maintained and exploited in ICT collections, and that this creates problems when the context of the learning is particularly distinctive (Becta, 2008). Though computer labs enable educators to exploit computers with the whole class, it was problematic for the educators to introduce computer technology with other learning activities when the class was not planned to the computer lab, and a

more practical approach would be to hold computers in both labs and classrooms (Ibid). The availability of computer is an essential factor in developing learners' ICT skills, but it is crucial to manage ICT equipments on the bases of the necessities and needs of teaching and learning process in a given educational context (Sang, G et al.2010).

D) ***Poor Quality Hardware:***

Another factor which may raise the obstruction when assessing institutions' level of using computer is the quality of the hardware accessible. In a Survey of ICT and education in Africa, it has been reported that store of computers in African schools was insufficient for instruction *(*Hamdy, 2007). Moreover, it has been reported that teachers are less excited to use ICT where the resource accessible is old and unreliable (Roblyer, M.D. 2004). Poor quality of hardware is considered to be an obstacle for teachers who complained about outdated materials as hardware become out of date so rapidly. It is believed that this obstacle was intensified by the fact that students had more advanced resources at home, and this brought further complexities for teachers seeking to exploit the older technology in institutions (Afshari et al, 2009).

E) ***Inappropriate Software:***

Though there might be an accessibility of software now operational for exploitation in the classroom, many of this software is not suitable or would not really improve a lesson by any mean (Schoep, K. 2005). Some inapt software covers too many subjects rather than fostering students' skills. As well, weakly designed software, and a shortage of time for teachers to plan their own software, often leads educators to "give up" and prefer not to make use of ICT (Schoep, K.2004).

In a study conducted by the Centre for Guidance Studies unsuitable software is considered as a hamper (Bosley and Moon, 2003). Bosley and Moon's study was done with a stress on careers in education and leadership, but the findings are worth noting when considering overall ICT barriers in education. The study states that unsuitable software plan can disengage the students from the projected learning processes, and as a consequence can generate a hurdle to the use of ICT.

F) Lack of Personal Access for Teachers:

One of the factors which affect teachers' confidence in making use of ICT is the degree of individual access to ICT that the teacher has. When considering the barrier to access resources, it is significant to consider teachers' attitudes and perceptions to use ICT in their instruction. Study makes an explicit relation between teachers' use of ICT to achieve their own individual objectives and their confidence to use it for teaching (Smarkola, C. 2007). It is found that teachers who make modest or no individual use of ICT have a low level of confidence in implementing it into their classroom instruction. It can be deduced that teachers who make use of ICT frequently are confident in using it, have a positive attitude towards it and consider it as a helpful instrument in both individual and their instruction task.

Two different types of barriers that can obstruct the use of ICT in the classrooms; they are extrinsic and intrinsic barriers (Bingimlas, 2009). Extrinsic barriers cover issues for instance time, support and resources. The other, intrinsic barriers involve influences that teachers, managers and individuals may have on the integration. Barriers are then classified into school-level barriers and teacher- level barriers. School- level barriers are divided into three points. They are a lack of time, lack of effective training and a lack of accessibility (Bingimlas, 2009).

G) Lack of time:

Findings from recent study have revealed that teachers tend not to use ICT in their classrooms because it takes too much time to place equipment, to employ the equipment and to learn how to employ it (Alhawiti .M, 2013). An issue that exists for teachers in many facets of their instruction with ICT is the lack of time required to accomplish given tasks. ICT based instruction is indeed a point that is influenced by the factor of time. Acquiring new skills in whichever profession needs time, but teachers have little time left after spending most of their day in giving instructions. Though, they do require that time to try out the technology, share experiences with peers, and attend technology related in-service training courses (Steel, C. 2009).

Teachers seem to be very anxious about the lack of time for technology; they believe that they require more time to acquire computer basics, plan how to infuse

technology into their teaching, and essentially employ the technology in the classroom (Swarts, P. & Wachira, E. M.2010). Teachers believe that a great deal of profession is requisite in arranging suitable ICT resources with a variety of skills, and complained about lack of time limiting them from exploiting resources for effective use of ICT (Tanveer, A. 2010).

In a research conducted upon teachers of two American high schools, it was found that there was scanty time for computers to be implemented entirely into everyday instruction. Informant teachers described that they would require hours to search web sites, arrange multimedia resources for lessons, and embark on training. It was found that this issue did not only apply to those teachers who made little use of ICT; similar criticisms were made by teachers who were seeking to truly employ the technology in their lessons, because they were having to work longer hours so as to use ICT appropriately (Becta,2008).

H) ***Lack of effective training:***

Insufficient training opportunity for teachers to integrate ICT in educational settings is one of the major barriers to integrate ICT in the process of teaching and learning. Although there has been a large progress in this point to train teachers about use of ICT, unsuitable training styles bring about low levels of ICT usage by teachers. Programs which lack pedagogical conditions are expected to be ineffective (Al-Alwani, A.2005). Some teachers are not able to use technology as they lack the time required to completely organize and research resources for courses. Time is as well required for teachers to become better informed about hardware and software and adequate strategies through which an ICT based instruction can be done (Ajayi, L. 2009).

I) ***Lack of accessibility to resources:***

This is a common barrier that disheartens teachers from introducing ICT into classroom practices. Levels of access to ICT are critical in identifying levels of integrating ICT (Teo, T et al, 2008). Though, it is significantly useful to reflect on the level of access for ICT resources, it is crucial for the quality of resources to be adequate and properly managed to assure utmost access for all users (Tondeur, J, et al,

2008). The barrier of accessibility to resources can be reduced with time, money and resources.

1.9.3 Teacher Related:

The barriers that are making school- level barriers steady are the teacher- level barriers. Teacher-level barriers are divided into four points. They comprise lack of teacher's confidence, lack of teacher competence, resistance to change and negative attitudes towards ICT.

***A) Lack of teachers' confidence*:**

Several studies revealed that the teacher's emotions towards ICT plans are negative, mostly with teachers who have been acting upon within a classroom for a period which exceeds a year. This might be because they are worried about the classroom arrangement if they are to implement ICT into classrooms or they are not self-assured, as they do not have the essential skills. Besides, many teachers may not have the basic skills and feel nervous and unconfident. Unless teachers work on some essential skills and motivation to experiment with students, ICT use in education is in a drawback (Tong, K.P., and Triniada, S.G. 2005).

B) Lack of teachers' competence:

It stands for the proficiencies of teachers. A number of teachers those are not conscious of all the advantageous ICT programs accessible to them. Studies show that many teachers lack the knowledge and abilities to employ computers and were not excited about the implementation (Bingimlas, 2009).

A very important pointer of teachers' levels of integration of ICT is their level of competence in exploring the technology. Teachers who are not skilled in employing computers in their work will attempt to evade them totally (Towndrow, P.A.2007).

C) ***Resistance to change:***

A number of researchers have reviewed resistance to change as one of the major obstructions that impede the integration as it affects all other obstacles. A lot of teachers that are already implementing ICT believe that is too difficult and will take too much time or it is not essential to employ the technology. Others consider that the

classroom structure will be changed, as they cannot manage all features of the learning.

Resistance to change is a factor which obstructs the complete implementation of ICT in the classroom. This resistance can be viewed in terms of teachers' confidence to transform their instruction practices, and even in terms of schools as institutions considering it difficult or being incapable of restructuring in ways which promote new practices integrating ICT (Triggs, P., & John, P.2004).

D) ***Negative attitudes:***

Teachers' attitude plays an essential role in the teaching-learning process that employs computers and internet connections. Though teachers' attitude towards use of these technologies is critical, many studies divulge that teachers do not have clear understanding about how far technology can be helpful for the assistance and improvement of learning.

Evidently, some teachers may have positive attitudes to the technology, but they are reluctant to introduce it in instruction due to low self-efficacy, and propensity to consider their selves not confident to give instruction with technology. In this sense, Bandura (1986) explains that self-efficacy as individual's beliefs in competencies to plan and execute courses of actions to attain particular types of execution. Furthermore a study revealed that attitude, motivation, computer anxiety, and computer self-efficacy are factors influencing teachers' use of computers in their classes (Brosnan, 2001).

It is believed that shift to ICT integration, might not be simply approved, there will be some extent of resistance. Teacher related barriers of technology are sometimes triggered due to some technical problems embodied in lack of technical support, No perception of challenges, age differences and gender differences (Bingimlas, 2009).
Some technical problems may also hamper the use of ICT. They involve lack of technical support, no perception of challenges, age differences and gender differences.

E) Lack of technical support:

We have thus far dealt with teachers opinions of how computers and technology can stop working, and how this creates obstacles to hamper teachers from opting for ICT, still before the potential blunders could arise. Another obstacle comes from

breakdowns of resources and the succeeding interruption. If there is a shortage of technical support accessible in a school, then it is expected that anticipatory technical maintenance will not be accomplished frequently, ensuing in a higher risk of technical breakdowns. In the schools that cannot provide technicians, there are frequently, "software glitches". When the breakdowns do take place, an absence of technical support may denote that the resource stays out of use for a longer period of time (Unal, S. and Ozturk, I.H, 2012).

Breakdown of resource restrains the integration of ICT into teaching and learning environments. Studies show that technical breakdowns are likely to diminish teachers and students motivation and will to use computers. Evidently, there is a firm connection between these two barriers; the more often that real breakdowns happen (maybe due to the absence of shielding technical maintenance), the more likely teachers are reluctant to use the technology. It is considered that teachers who attempted to perform a task on a computer, but who were ineffective because of technical issues, would then avoid using computers. This, then, further underscores the requisite for suitable technical support in education institutions (Vallance.M et al, 2007).

Technical breakdowns with ICT material result in lowering levels of ICT deployment by teachers. Persisting breakdowns, and the expectation of breakdowns going on throughout instruction sessions, are expected to decrease teachers' competence and bring about teachers to evade utilizing the technology in upcoming lessons (Vallance.M et al, 2008). The lack of accessible technical support is also anticipated to let teachers evading ICT, for fear of a breakdowns that cannot be resolved and lessons being ineffective as an effect (Usluel.Y et al, 2008).

F) No perception of challenges

One key area of teachers' attitudes towards ICT is their understanding of how it will benefit their work and their students' learning. It is essential to make teachers realize the importance of using technology in their teaching. This can be achieved through focussed training which specifically shows teachers how technology can help them in their own individual situations. If teachers see no need to question or change their professional practice, then they are unlikely to make use of ICT. The perceived

usefulness of computers to teaching is an important factor for teachers, and need to be included in any ICT training programme, to ensure teachers are convinced of the value of using ICT in their teaching.

The factor of perceived usefulness influences computer acceptance to a much greater extent than perceived ease of use. Computer system is useful only if it is applied to a context, and without understanding how computers can be integrated into teaching, teachers may not perceive computers as useful at all. A study found that some teachers who were given computers to use remained unconvinced about the computer's potential, and concluded that training should ensure that teachers are made aware of the range of uses and possible benefits of computers (Vallance. M et all, 2008). Teachers who do not identify the benefits of exploiting technology in their education are less expected to integrate ICT. Any training course ought to assure that teachers are made aware of the advantages of exploiting ICT (Ibid).

G) Age differences:

Little evidence was found out in the literature to hold the view that age impacts levels of teachers' ICT utilization. A study revealed that younger teachers are no more expected to integrate ICT in their instruction than their more experienced peers (Bradley and Russell, 1997).

On the other hand, a little number of respondents to the Becta survey put forward that the age of teachers was a factor which generated obstacles to the deployment of ICT (1.8% of responses mentioned age), in that older educators are less expected to adopt the technology, only due to their advanced age. A study revealed that age is a factor affecting the utilization of computers and the internet, explaining that the ratios of educators employing computers decreases as their age advances, but the study recognized that the significance of this factor is dropping (Becta, 2004).

Much of the outstanding literature would advocate small or no connection between age and ICT utilization by educators. A study found that levels of computer competence or concern did not differ considerably with respondent age ;suggesting that computer nervousness raises with age and then, that younger educators are not likely to require professional improvement were not expected by the findings obtained (Brady,2011) . The fact that older educators do not of necessity become more nervous

about utilizing computers, then, would propose that age is not in itself an important obstruction to the use of ICT by teachers.

H) Gender differences:

There is some evidence to advocate that educators' gender has an impact on the level through which they employ ICT, with male tutors having more deployment of ICT than female tutors, and with female tutors showing greater levels of computer nervousness than male tutors. This may have a critical negative impact on the deployment of ICT in primary schools, where there are more female tutors than male tutors (European Commission, 2003).

In the literature review executed in a number of studies, a little evidence was found that makes the connection between teachers' gender and their practice levels of ICT. Study by the European Commission (2003), for instance, mentioned that gender is a factor which affects the use of ICT by educators, noting that 77% of male educators deployment a computer off-line, compared with 66% of female educators, and revealed that the gap is wider when considering the utilization of the internet; 56% of male educators compared with 38% of females.

Another study also underlined a link between gender and levels of computer nervousness, with females showing a greater degree of nervousness than males (Bordbar. F, 2010). Principally in primary schools, where the percentage of female to male educators is much larger, this problem as an obstacle to the use of ICT may be much more important. There could be some causes for the dissimilarities showed by these aspects. Though, till recently, there are numerous primary schools that lack internet connections accessible. As the majority of educators in primary schools are female, this could conceivably explain why less female educators used a computer online (Bretag. R, 2011).

I) Connections between barriers

There are strong connections between lots of the recognized barriers to ICT implementation; any issues affecting one barrier are expected also to affect some other barriers. Such as, teacher competence is directly affected by teacher confidence which is in turn affected by technical breakdowns, levels of individual access to ICT, levels

of accessible technical support and the quantity and quality of training on hand, all of which can be considered as barriers to ICT themselves. (Ertmer, 1999)

Catheral (2005) classifies challenges around resources problems; implementation and technical reinforcement problems. Then, there are the educator challenges around technology reinforcement and resources (Koller, Harvey & Magnotta, 2001). Both teachers and students have to reconsider what can match suitably with their teaching and learning experience and they have to decide their future cooperatively. There is also a requisite for social contribution in making out the importance of teachers and students in the education experience (Jaffer, Ng'ambi and Czerniewicz, 2007). The barriers of technology can only be eliminated when there is a common awareness and approval by all stakeholders on each of the features. It will take time and investigation to authenticate why technology is critical.

The use of ICTs in education systems may encounter different challenges with regard to policy, planning, infrastructure, learning content and language, capacity building and financing. ICT-improved education necessitates obviously identified goals, and use of resources. Tinio (2002) focuses on issues such as analysis of existing performances and applications, recognition of potent incentives and barriers, course and pedagogy, infrastructure and quality construction to be reflected upon in the structure of policy and planning. Besides, it is wise to identify educational objectives at diverse education and training levels in addition to the different varieties of ICT utilization that can support in the identification of the objectives.

Policy makers then must realize the advantages of ICTs in exploiting diverse contexts for diverse objectives. Other challenging areas at the level of policy and planning are recognition of stakeholders and coordination of attempts across special interest groups, the monitoring of the selected ICT-based model, and identification of current basics of financing and improving strategies to provide financials to approve the use of ICT over the long term.

The infrastructure challenges that may exist are nonappearance of proper buildings and rooms to integrate the technology, lack of electric provision and telephone lines, and shortage of the diverse varieties of ICTs. For this reason, one

should cope with infrastructure related challenges previous to the planning of ICTs use in education systems.

With regard to challenges of capacity building, we ought to improve aptitudes of teachers and school managers for the effective incorporation of ICT in the education system. Actually, one potential factor of ICTs incorporation in education systems is the competence gap of people incorporating it (Tinio, 2002). For example, teachers require professional improvement to develop aptitudes with special applications of ICT. This includes incorporating ICT into current curricula, changing the role of teacher, and strengthening educational hypotheses such as constructivism/or student-centred learning. For this reason, any endeavour of ICT integration in education should match with teachers' professional development. The school leadership also plays a major role in the incorporation of ICT in education. Absence of assistance from the school administration is also a great challenge. Therefore, for the success of ICT integration, managers must be competent and have an extensive knowledge of the technical, curricular, managerial, economic, and social aspects of the integration of ICT in education system.

Moreover, learning content and language also challenge the implementation of ICT in education. Content development is a significant factor that teachers ignore. In implementing ICT in education, we have to mind for the importance of the learning content to the target groups. With regard to language, English is the leading language in lots of educational software, though English language skill is not high in lots of developing nations, and this is one barrier in the implementation of ICT to education. Another big challenge is the financing. ICTs in education programs need huge capital investment and developing nations have to envisage the advantage of ICT integration to balance the fee related to the current changes. Impending sources of money and materials for the use of ICT are funding, public financial supports, fund-raising events, profits earned from business, and profits earned from auxiliary actions (Tinio, 2002). Surmounting the discussed challenges may support education systems gain the most from this technology.

1.10 Strategic Actions for Integrating ICT in Education

The above sections on ICT integration have been significant, exposing achievements and limitations of the uptake. It is hence appropriate to advance the discussion towards better knowledgeable strategic actions for ICT integration in education system. In the acronym ICT, the 'C' stands for *communication* and this term should be identified as communication between persons 'supported by' technology (Alhawiti. M, 2013). They are persons who are the centre of information and technology acceptance and achievements, and also its breakdowns. Researches attempt to investigate the educational strategies universally so that to advocate subsequent criteria for future strategies concerning technology implementation (Al-Zaidiy, N, *et al.* 2010).

A wide-ranging mode of implementing ICT was constructed according to subsequent three hypothetical perspectives: constructivist learning hypotheses, strategy of interactivity, and effectiveness of a system (Wang, 2008). According to cognitive constructivists, students structure knowledge on the basis of their prior experiences and creative data. Accordingly, teachers are rather facilitators of learning for this reason successful plan of ICT integration should endorse and promote students' needs and interests. Plan of ICT integration should then develop this cooperation to improve students' learning all through interactive approach of collaboration communication and exchange of information (Wang, 2008). In Singapore, schools began introducing ICT in 1997 in order to "[....] develop a culture of thinking, lifelong learning, and social responsibility" (Lim, 2001). By 2002, the plan of integrating ICT in Singapore schools reached a significant level of enhancement and consistency. A study was conducted in Singapore schools to identify how ICT was implemented and effectively utilized to enhance students' motivation and engagement in higher-order thinking (Lim, 2001). Findings reveal that, throughout the plan of ICT integration, students gain more independence and manage better their learning simply because they fell engaged and motivated while using ICT in classroom lessons and activities.

UNESCO's Division of Education (2002) has proposed an ICT improvement model. The new model considers ICT improvement as a continuum through which an

educational association or individual teachers can be made to define the approach that relates to the uptake of ICT in particular context. The new model comprised four major approaches along which educational institutions and teachers can accept and use ICT. These are the emerging approach, applying approach, infusing approach, and transforming approach. Consistent with this model, schools that are at the start phases of ICT development illustrate the *emerging approach*.

These schools start to gain some computing equipment and software. Managers and educators in such schools are just starting to find out the features and effects of employing ICTs for school organization and infusing them into curriculum. Schools at this initial step of improvement still rely on the conventional approach of education in which educators are the core of the educational setting. The curricula of these educational institutions strongly integrate the essential aptitudes and expertise concerning ICT that will support the schools in continuing to the subsequent phase of development. In the *applying stage of development*, education institutions generally expand their comprehension of the role of ICT in learning.

Managers and educators in these institutions employ ICT to accomplish tasks related to school organization and curriculum improvement (e.g., the utilization of electronic slide presentations and word-processed handouts). Though, educators still largely manage the learning setting, and ICT resources are frequently employed to fulfil planned lessons in prearranged content. Students in such education institutions have access to technology by making use of classroom computers and computer labs. ICT in this phase of development is viewed and considered as a detached content area. Therefore, for these institutions to shift to the next phase of ICT development, they must integrate an ICT-based curriculum that boosts ICT across various subject contents. Institutions at the *infusing stage of development* have diverse varieties of technology novelties in classrooms and management.

Educators in such institutions have already found out new ways through which they can employ ICT to alter their personal performances and expert practice. The curriculum has also altered to incorporate subject contents to reflect real-world practices. Students in such institutions have access to technology that supports them

choose plans and ICT resources that engage learning and demonstrate the students' expertise through subject areas.

The *transforming approach*, the last phase of ICT development, is related to schools that have employed ICT to productively develop and approve the education institution management. Throughout this phase, ICT becomes an essential part of individual efficiency and proficient practice. The student is the core of the curriculum. Students may, for example, develop community principals to resolve local troubles by accessing, investigating, reporting, and delivering information with ICT resources. Students have infinite access to ICT and are supposed autonomous for their own learning (UNESCO's Division of Education, 2002)

In this framework, strategic actions are suggested so as to endorse an incorporation of ICT that basically shores up and afterwards changes current practices. The planning attempts to realize the wanted targets of the strategies by proving accurate guidelines that new and current educator can implement in their lesson preparation taking into account the importance of thinking, learning, creating and communicating as mentioned in the figure bellow.

Figure 1.2 Strategic Actions (adapted from UNESCO, 2007)

The four constructs of thinking, learning, creating and communicating (in the figure above) are employed to give a significant spotlight for teachers. The constructs are believed to be core skills necessary of school graduates in the digital world. Thus,

> High school graduates need a global awareness, work skills that include team-building, creativity and innovation, critical thinking and problem-solving, self-motivation and self-direction skills, information, communications and technology literacy, as well as high levels of literacy and numeracy. If we think we can let some of our students graduate with less than that and still succeed, then we are fooling ourselves (Partnership for 21st century skills, 2007).

The matching planned actions seek to improve student's learning outcomes and teacher's performance by providing "… ability to transform information into knowledge using new technologies [that] can be considered the critical factor contributing to wealth and power in today's world at both the individual and national level" (Warschauer, 2007; p.43). Besides, integrating technology into classroom environment requires knowledgeable support at the school and administration environment (UNESCO, 2007). The planning should therefore be regarded as strategic actions for all those implicated in upholding the development of education in the 21 century.

1.11 Conclusion

This chapter has reviewed the literature on essential concepts related to the study, emphasizing the use of ICT in classroom instruction as well as teachers' perception about the adoption of ICT in today's education. In review of previous studies, it has been proposed that the study of related factors such as conceptions and views of teachers should be done in accordance with classroom practice. Moreover, literature studies implied that teachers' beliefs about instructing with technology differ according to individual practices and institutional contexts in addition to technology aids and support.

It is implied that instructors may have to adapt their role and responsibilities to support students' language learning in today's learning environment. Some influencing aspects and barriers to technology integration stated in preceding studies have disclosed that it is also interrelated with multidimensional features of a given institutional setting. This review of significant studies has suggested that thoughtful research methods and several perceptions should be taken into account in the study of teachers' thoughts and technology implementation in given context, particularly, in the Algerian EFL context, wherein, little evidence has been provided in literature about the effect of teachers' pedagogical perceptions and institutional influences on the adoption of technology in EFL instruction.

CHAPTER TWO

Methodology and Data Collection

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2.1 Introduction

This chapter provides a thorough description of the methodological approach of this research. It starts with a background of the study, the research setting and participants, the theoretical framework used to conduct the research design and methodology, and the research approaches taken on with underlying principles for particular methods used. This is pursued by the research collection procedure, the presentation of the instruments and how they were utilized, and data analysis procedures. Finally, discussions about the procedures to assure the trustworthiness of the research, ethical considerations and a concise conclusion are presented.

2.2 Background of the Study

Since the start of this century, education has encountered significant challenges. The big number of people to teach, inadequate economic circumstances, and low quality of teaching are some of those challenges. In the information age, how to provide high quality of teaching and training has become a central question to be answered for those who call for tutoring and can profit from it in the most successful way. Educational schemes have tried to surmount the challenges by working up new strategies. Information and communication technologies (ICT) is a new strategy for developing the propagation of information and supporting to encounter these challenges (Lever-Duffy, McDonald, & Mizell, 2003; USDE, 2000).

From the start of the information age, ICT has sustained a crucial role in improving the quality of teaching. Thus, many countries desire to improve the quality and efficiency of the teaching learning process, and consider ICT as one way through which this may be attained. This role in teaching comprises assisting students to learn and teachers to execute their teaching profession more proficiently. As an effect of rapid growth in a small time, ICT has turned out to be the centre of interest for educational settings.

Rapid growth in ICT has also triggered some major changes in education. This brings about the call for training students for these changes in the information world. In all levels of education, technology turns into a channel to operating successfully in the setting stimulated by the information age. With the progressing developments in educational technology and the rising accessibility of technology to educational institutions, it is critical for the education systems to consider crucially how technology is implemented into the curriculum (Parker, 1997).

A prearranged procedure has a substantial significance of integrating ICT in classroom, curriculum, school administration, and any educational environments. Integration of ICT is central to upgrade the quality of education and how ICT might support teachers to generate different approaches. For that reason, educational policymakers have associated reform with the integration of ICT into educational settings mainly ever since the publication of "Nation at Risk" in 1983. Consequently, billions of dollars have been expended on operating this policy by all countries in the world. Big investments are now being brought in to provide educational institutions with ICT. Governments attempt to identify the conditions to be pleased for this to realize enhancements in student attainment. In fast-changing surroundings, they are often investigating for the best method to move forward (ISTE, 1999; Koc, 2005).

In these backgrounds, teachers' shifting role in the 21st century entails a basic mission, which is to be willing for introducing technological novelties to teaching learning process. Currently, essential skills and the level of willingness are key factors in the integration process of ICTs (Özo_ul, 2002). Accordingly, School of Teacher Education (STE) plays a central role in training prospective teachers to become expert in the implementation of ICT into the curriculum. They have to help future teachers know how ICT can be employed to instruct content in successful and effective ways (Keating & Evans, 2001).

Conversely, implementation of ICT into teacher education is a crucial point to be adept to implement ICT in the teaching learning process. Some educational institutions do not at this point equip future teachers with the essential aptitudes,

proficiencies, and expertise to train them to utilize ICT successfully in their future vocation (Yuksel Gokta, 2006).

With the endeavour of utilizing ICT successfully, teachers should be provided with the sufficient skills, aptitudes and experiences. Constantly, new teachers start off their professions and are supposed to get the skills to fuse nowadays 's ICT into learning activities that will engage and captivate students attention, when at the same time train the students for the future. Teachers are anticipated to be ICT leaders, models for suitable exploit of coming out forms of ICT, and successfully implement a wide range of ICT into the curriculum (Özo_ul, 2002).

Unluckily, lots of practitioners and graduates of higher education institutions are even now lacking the ICT training for their work demands. The inconsistent experiential studies in those institutions, particularly, should engage today's classrooms, making use of ordinary teachers so as to be better oversimplified to other educational institutions. The thought that is constantly upheld is that teachers are the keys of student learning and attainment, so that they became the fundamental point of the attempts.

New acknowledgments to teachers' roles and rapid alterations in ICT also influence the mission and vision of STE. Those institutions have been reshaping future teacher education programme so that for future teachers to become proficient users of new-fangled technologies when they develop into teachers (Özo_ul, 2002) since teachers are the key to successful and professional ICT integration into the curriculum. When technology is on hand, though, it is often employed with strategies of teaching that fail to exploit its full potential. This could be the effect of incapability, inappropriate training, technophobia, or a shortage of practice employing unconventional teaching strategies. So, effective professional improvement is required if ICT is to support educational institutions enhance learning. In these frameworks, studies about ICT implementation play key roles to rewarding and effective ICT integration in education system (Fullerton, 1998).

2.2.1 Research Settings and Participants

Random sampling method was taken on for the survey questionnaire. The main research launched in February 2016 when a survey questionnaire about teachers' perspectives of ICT integration in teaching learning process was administered to participants who revealed willingness to contribute in the study. Hence, semi-structured interviews also unstructured interviews were carried out with teachers who had accepted to be interviewed. The research was conducted with 174 EFL teachers giving instruction in three English language departments in Algerian higher institutions. Their age ranged from 25 to 52, thus 38 being their average age. Their teaching experiences ranged from 3 and 22years. The participant teachers of this study do not "*represent the wider population*" of the Algerian university teachers in order that the finding from this research group are not appropriate for any generalisability; they present specific perspectives of these participating teachers.

2.2.2 Research Problem

Increasingly teachers worldwide are adopting novel technologies in their classroom, technology based instruction have to be studied, explored and evaluated in natural settings. Research has shown that teachers are more expected to implement technologies if they can recognize the effectiveness of technology devices that shore up their pedagogical values (Zhao, Frank, 2003). Besides, teachers' personal beliefs and aptitudes to realise the effectiveness of technology were conceived as critical for classroom technology implementation (Ertmer, 2005; Rogers, 1995, Schoepp, 2005).

Before teachers exploit technology in their classroom instruction, they must be personally certain of its advantages and must perceive the usefulness of specific technologies (Lam, 2000), and how they suit within their contained classroom environments (Stein, Smith&Silver, 1999). Consequently, what teachers identify and trust always has an influence on their performance in the classroom; simultaneously what they believe and perform in the classroom is extremely influenced by social and

environmental factors. Many researchers concur that the ways through witch teachers utilize technologies depend on their understanding of their pedagogical beliefs and the framework wherein they work (Burns, 1996& Tsui, (1996) and Ertmer, Gopalakrishnan and Ross (2001). Therefore, knowing how teachers perceive technology in their classrooms and social context is crucial for effective technology integration.

Though this scope of research is left unexplored in Algerian educational settings, investigations are particularly devoted to what is on teachers' brains when they adopt a technology tool, how they employ it to improve their teaching or prop up students' language improvement and what they identify about the conveniences and restraints of implementing technology at their institutions are still overlooked (Vallance, M. et al, 2007).

Therefore, an investigation into teacher's perspectives about teaching with technology will provide valuable angle about how practicing teachers respond to universal requirement of integrating technology in English language teaching learning process. So as to enable university teachers to achieve the preeminent exploit of instructional technology in Algerian education context, teachers' perception corresponding to practices and institutional settings have to be investigated. As well, to get insights into teachers' comprehension of technology mediated teaching which is placed in given settings. As Wertsch (1991,p.86) affirms " human mental functioning including thinking in inherently situated in social interactional, cultural , institutional, and historical contexts" is ,therefore, essential to study an individuals' perspective in relation with socio-cultural setting wherein individuals perform.

Though, a number of investigations have studied outlooks, approaches and engagement towards technology-enhanced language instruction (Albirini, 2006; Preston, Cox & Cox, 2000 & Peacock, 2001). Studies about the relation between teachers' perspectives and actions concerning technology introduction particularly in the Algerian teaching- learning remain limited. Hence, this research aspires to give insights about university teachers' perception on technology integration in their

classroom practice which might afford educational guidelines for teachers and decision makers to support the use of technology in educational settings in a given context.

2.2.3 The Need for Research

ICT has brought in fundamental changes in particular areas. It is anticipated that changes on the same scope will take place in education systems. This has urged to review some precedence in education. The novel technologies are potential tools for alteration and advance. They may hearten students to leave out passive listening in favour of more responsive motivation, aid to fetch the exterior world into the class, and more usually, transform the technique education is dealt with. ICT is neither an alternative for "traditional" learning and teaching, nor an alternative for students exploiting their understandings and thoughts. The mission of ICT is to improve education, especially, by aiding students to learn more efficiently and by aiding teachers to perform their profession more successfully. ICT ought to be exploited in all areas of the curriculum, and it ought to be made obtainable to assist teachers handle the learning process (Eurydice, 2001).

Lately, amplified focus on ICT in education system underlines the necessity for ICT to shift from the margin of teacher training to the heart of teacher training. Realizing that "[some education institutions] are in the vanguard of introducing technology into teacher preparation" (Gokta.Y, 2006). In this concern, the National Council for Accreditation of Teacher Education of USA (NCATE, 1997) reports that "… [Most of education institutions] have not yet fully integrated technology into their teacher preparation programs" (P. 8). To tackle such issues, several action plans have been taken up at national and world planes, with greater investments for ICT integration into the teaching learning process. While the rate of such progress varies really, there is certain that all developed countries are currently adopting very high precedence to ICT in their teaching strategies, and attempting to change the way their education systems are managed and operate as a result.

The Algerian government launched, a few years ago, a global reform of the system of higher education to meet up new system requirements brought by the new

socio- economic situation. The choice came over the "LMD: Licence, Master, Doctorate" system. A new system implemented in the Algerian university between 2004 and 2005, and, as of 2011, generalised in all faculties. The LMD system puts emphasis on the incorporation of ICT in addition to multilingualism and variable teaching unit in the curriculum involving required foreign language and ICT courses. After more than ten years of integration, it is of use to assess some main points of this system alongside the usage of the ICT performance.

In spite of the extensive use of the Internet and computer applications mainly in the last decade in Algeria, the condition in its universities is evocatively different. Our Algerian university, similar to all other universities in the world, represents the knowledge of learning. Prevailing times have transformed the function of the university whose major new mission is recapitulated in the new guidelines of the Algerian ministry of Higher Education and Scientific Research (Hamdy.A,2007).

The new integrated LMD system is presently living major shift and this is revealed by the rapid growth of compulsory ICT in all departments. The higher education area has not been provided with this technological progress, which makes the learning process very adaptable for distance learning, e-learning and virtual learning (Benzerdjeb. F, 2014). ICT has, in effect, become an essential resource among resources of improvement and advance of countries that are typified by global efficient advantages.

2.2.4 Significance of the Study

The purpose of this study is to explore the current status ICT integration in the teaching learning process by investigating the perspectives of teachers recruited within three Algerian universities in terms of how they perceive the use of ICT in their teaching. The present study has three major significances. Hence, this study may contribute to the related decision makings based on three aspects:

-Firstly, this research may be a factor to spotlight and found baseline data about the ICT perceptions, ICT competencies, ICT use in classrooms; effectiveness of ICT

related courses, major barriers, and possible enablers on the existing status of ICT integration into the university education system in Algeria (Guerza.R, 20015).

-Secondly, the outcomes of this research can be taken up by the legislators, politicians, policy makers, Ministry of Higher Education (MoHE) and universities to reconsider the present status of ICT and review connected policies, strategies, and courses for the effective ICT integration in the teaching learning process.

-Thirdly, the main endeavour is to build up a deeper understanding about the integration of ICT into the teaching learning process in higher education by spotlighting the current status at the level of ICT perceptions, ICT competencies, ICT use in classrooms, effectiveness of the ICT related courses, major barriers, and potential enablers to implementing ICT (Benzerdjeb. F,2014).

2.2.5 Design of the Study

There are a variety of processes of collecting data: tests, questionnaires, interviews, classroom observations, diaries, journals, etc. Frequently, quantitative approaches employ tests and closed-ended questionnaires to collate study and interpret the data. Though, the qualitative techniques mainly utilize interviews, diaries, journals, classroom observations and open-ended questionnaires to gather, evaluate and interpret the data. Conversely, mixed method approaches quite often make use of closed-ended questionnaires (numerical data), interviews and classroom observations (text data) to collate data.

In an attempt to triangulate the data, the investigators can gather data through different processes to increase the reliability and constancy of the information and their analysis. This chapter explores the assets and limitations of the questionnaires, interviews and classroom observations on account of their significance and extensive use. By and large, before and after gathering the information, the investigators have to reflect on the soundness and dependability of their information. Thus, the different means of amplifying the trustworthiness and consistency of the data will be tackled in depth. Eventually, the investigators need to concoct their research and describe it.

2.3 Definitions of the Concepts and Terms Employed in the Research

Definitions of concepts and key terms used in this study are presented bellow.

ICT: it signifies "Information and Communications Technology" which is presently described as the set of activities that support by electronic materials the processing, transfer, and presentation of data. It can, in the main, be delineated as the set of technologies that facilitate the compilation and dispensation of the gathered data, storage, and the automatic transmission of data to anywhere else or access them remotely when required through electronics and/or optics, etc. technologies (Ceyhun & Çalayan, 1997).

ICT Integration: ICT integration into education is described for the present study as utilizing ICT efficiently and proficiently by entire stakeholders in all domains of education. The significant ICT integration identifies when, why, and how particular materials should be employed to support learning. It requires both skill to design and pick the best application instruments, in addition to the knowledge and ability to integrate and assess their efficiency (Newby, Stepich, Lehman, & Russell, 2006).

ICT Perceptions: The term is described for this study as the procedure of processing and understanding data collected by the meanings about ICT. It is not an instant reaction to ICT; instead it is a process expanded eventually. ICT perception also is interwoven to preceding knowledge and recollections (Ashcraft, 2006; Hentschel, Smith & Draguns, 1986).

ICT Competencies: It can be identified for the field of the research as to possess and to acquire sufficient knowledge, proficiencies, and aptitudes about ICT so as to utilize it successfully and skillfully (OECD, 1997).

ICT Related Courses (ICTRC): The courses which are intended to supply basic information and competencies in utilizing ICT, particularly computers, efficiently in a teaching/learning process. The aims of the courses are to graduate lecturers with a satisfactory level of technology proficiency (OECD, 1997).

2.4 Measures of Integration

If the delineating of ICT integration is intricate, then so is its measurement (Cuttance, 2001). An attention-grabbing argument rising from the literature is that integration is an uncommon incidence with some investigators making out that though the classroom use of ICT has amplified, "it is still unusual for a teacher to regularly integrate technology into the learning experience" (Willis, as cited in Proctor, Watson & Finger, 2003, p. 68). A number of authors (see, for example, Cuban, 2002; Schofield & Davidson, 2002) are evidently disapproving in their standpoint regarding the non-use of computing resources in schools and perceived it vital to comprise an "inaction" level in their replica (Trinidad et al. 2004). It is unlikely to empirically gauge something which is invisible. This segment will seek to spotlight a number of the issues meeting prospective researchers in this area.

2.4.1 The Intricacy of Measurement

The initial issue of concern is the acknowledgment of what really forms new ICT-mediated learning experiences. Where integration is practical; it might be a clear transposition of "old" pedagogies and practices into a new setting. The teacher may have substituted the blackboard for the electronic whiteboard but may keep basic outlooks about teaching and learning. Hayes et al (2001) stated in their study of ICT use in NSW schools that "where teachers generally integrate computer-based technology into their existing teaching strategies [. …] they were using technology as a replacement tool to provide tasks similar to those not mediated by technology" (p. 12).

What is identified and perceived as being part of 21st Century education may be transposition more willingly than transformation with the current classroom practice substandard of the previously stated "critical use barrier" (Trinidad, Clarkson & Newhouse, 2004). An identification of this issue entails that the measure of ICT integration should be sentient of what might be named *a transposition paradox* where original media is being drawn on. Nevertheless, there has been slight or no pedagogical reformation. The objective of the teacher may be to set compulsory

necessities or community anticipations to make use of ICT instead of affording in fact innovative integrative or transformative learning experiences (Lloyd, M, 2005).

In line with the beforehand-quoted definition provided by Trinidad et al (2004) that integration is where the use of ICT turns out to be imperative to hold up learning environment. Reimann and Goodyear (2004) noted that learners' use of ICT needs ICT to be "a necessary component … [and that] without ICT the method would not be feasible" (p. 21). Different studies highlighted the idea of ICT being vital to learning experiences besides being included within the curriculum. This is an opposing of what Richards (2005) has called "add-on" activities advocating that these are not likely to change traditional or transmission models of teaching. This proposes a requisite for measurement of integration to reflect on the degree of reliance on the technology or more appropriately, its significance to the learning environment.

It is of worth at this point in the discussion to interpolate the broadly-used descriptors of the classroom use of ICT as being learning (a) about, (b) with, or (c) from the technology. The first of these is *learning about* which usually alludes to computer science or courses founded on operational skills. This associates nearly with Type "A" use from the typology presented by Downes et al. (2001). The descriptor *learning with* came out with the steps forward for ICT to be cross-curricular sooner than separated. It involves an upgrading of learning where the technology is employed to intensify student understanding or aptitude. What this usually means in practice, though, is that ICT is used as a presentation medium which Richards (2005) would allude to as "add on" and brings into line with Type "B" use (Downes et al., 2001).

The third descriptor, *learning from* has accrued from the use of the Internet (as an information source) and from rising use of automatic courseware. There is a disagreement for a fourth descriptor, *learning through* the technology which expands the notion of intensification and, more prominently, consents to cooperation and reflection both on- and off-line.

Even with of the divergent descriptors and typologies, what is palpable is that change in classroom use has cropped up and this is debatably because of alterations in

the technologies themselves. This is apparent in Toomey's (2001) observation of a movement to "whole school reform" through the use of ICT by proposing that:

> Many schools are now experimenting with new approaches to teaching and learning. They are doing so because they consider it a valuable way to encourage the development in young people of higher order thinking skills such as synthesising, analysing and evaluating, problem solving abilities, working in groups and other lifelong learning skills. They also recognise the relevance of these skills for life in the information economy. (p. 23)

There is little in this quoted text which would reveal an "add-on" culture. Change is obviously evident and, therefore, the call for original measures becomes central. As a reaction to this, it has been countered that "we need to dissolve and reconstruct the classroom in a connected world" (Lightford, 1995, in Lechner, 1998, p. 22) and in this case, our means of understanding and measuring it should also transform.

The foundation measure of integration studies is generally the teacher with a precise stress on ICT skills and affective factors such as confidence and anxiety (see Scaplen, 1999). This, in several cases, matches with the study being carried out in identifying hinders and also enablers of teachers' use of ICT in the classroom (see Downes et al., 2001; Godfrey, 2001; Lloyd & Yelland, 2003). Whilst it is broadly grasped that the "crucial component in the use of ICT within education is the teacher and their pedagogical approaches and that tutors are "the rank and file implementers of change" (Cox, Webb, Abbott, Blakeley, Beauchamp, & Rhodes, 2004, p. 4).

2.4.2 Measures and Models

It is patently obvious to advocate that how something is perceived and identified and when and where it is used settles on the way it should be measured. The way that ICT integration is presently being gauged is founded on these notions. A reconsideration of the dimension of ICT integration requires an equivalent reconsideration of what the term means and maybe a deeper understanding of the role

and degree of intercession of the technology itself. Likewise a reconsidering of what "technology" means and how it is employed automatically influences its dimension.
It is of worth noting that the beforehand mentioned clusters related to the use of the term "ICT integration" attempted eventually to present technology as a tool. The definition of "integration" arises causally from the theoretical consideration of what a computer is and how it is used.

This determination of conception comes upon another challenge in gauging ICT integration. Reimann and Goodyear (2004) pointed out the significance of "confront[ing] the issue that technology, and what we aim to do with it, are changing rapidly; understanding the relations between learning, pedagogy and ICT needs a firm grip on what is stable and what is in flux" (p. 2). As our needs are varying, then so too is what identifies "integration."

Gauging the extent students are taught "about" technology would be a measure for an "older probably simpler time before ICT went cross-curricular and schools were connected to the Internet and had access to inexpensive robust peripheral devices" (Lloyd, M, 2005, P.13). The altering use of the *about*, *with*, *from*, and *through* descriptors is proof of the altering needs and, evenly, of altering capacities.

A main basis of developing effectual and updated measures and models of ICT integration is that novel technologies are environmental as they alter the whole setting in ways that further technologies do not. Lankshear et al. (1997) noted that novel technologies alter the "social practices within which they are used, with the result of changing the way people talk and think about them" (p. 48). An approval of this major basis is translated into a model which takes a holistic conception of a learning environment instead of focusing merely on particular traits (such as those considered in the Scaplen study (1999).

The dimension of ICT integration could probably be only measured from 0 to 100 percent, with "0" being wherever integration is non-existent or divulging "inaction" and "100" being a full and perfect integration of ICT into class activities. Fluck (2003) claimed that incorporation relates to the way through which ICT is

embedded into student learning and can, fascinatingly, be dealt with unconnectedly from its outcomes. This conception is confirmed where "integration" is attained to the level where it is not evident. Theoretically, full ICT integration could not be gauged as 100% cannot also be 0.

Another example of 100% integration could be where CAI (computer-Assisted Instruction) learning experiences are drawn on and that all "learning" is planned. Integration measurements do not often involve these environments in that they are infrequent in classroom conditions.This dimension could be (as in Conference Board of Canada, 2002) set on an outline of common traits or measurements. The benefit of more intricate dimension is that it is more expected to reveal the complex character of integration rather than simplistic measures founded only on teacher's analyses, expertise or approaches. The complexity is that they are based on groundless conceptions mainly in setting link between such units like access and pedagogy.

The present study attempts to spotlight the five matters of concern in the dimension of ICT integration. These are (a) the transposition paradox where older learning shifted to new media, (b) the dependence on/centrality of technology on the learning experience, (c) the connection between student, learning and the technology, namely, is the learning arising about, with, from or through the technology, (d) identifying the basic entity of measure, for instance, teacher (which may cover intricacy) or school (which may not consider dissimilarities both within and between schools as a consequence of applied assumption controlling affirmed policy and objectives), and (e) likely falsified causal links. What can be confirmed evidently is that the dimension of integration is challenging and the integration of ICT is a promising investment.

2.4.3 ICT in the Algerian Context

The use of ICT tools in higher education setting has turned out to be a truth that has enforced itself during the last six years. After 2008, the Algerian universities have instigated a wide and propitious project for the teaching with one objective to improve quality regarding the strategies and approaches implemented for the teaching. Those

propitious attitudes towards elevating the scale of quality of teaching have been typified by adopting inventive techniques and policies that depend mostly on heartening learner-centeredness and learner autonomy particularly after the institutional reforms of the Higher Education system after 2004 described in the LMD

Amongst those reforms the classroom is not any longer teacher led, instead student led where students are compelled to be responsible of their own learning. Within this concept, teachers are considered as mentors or facilitators of learning. To carry out those principles, the Algerian universities have equipped new laboratories with well refined ICT means to reach those targets.

Algeria is fostering and endorsing the use of ICT to enhance the evolution process in general and the educational system in particular. This is being done through the introduction of an ICT framework in addition to the integration policy. The government has focused on exploiting ICT-related human resources. This was done as a reaction to the universal rising knowledge and information society.

The Algerian government gives the ministry of post and information technology the task of integrating and supervising the national ICT policy (Annual Report 2006–2007). Concurrently, the government has also started partnership with a number of international agencies to improve the ICT status in the country. Such as, in 2002 the World Bank collaborate with the ministry of post and information technology to build up and realize projects for the construction of the improving surroundings and convalescing access to ICT while making it accessible for all (World Development Indicators, 2006).

In fact, the level of ICT implementation is still stable and at a before time phase. In 2000 a regulatory rule was overtaken where the old public institution is responsible for domicile telecom was divided into two commercial associations. The rule also developed an autonomous regulatory organization of posts and telecommunication. Currently, there are three operatives: Algerian Telecom symbolized by mobile and fixed lines, Orascom incorporating Djezzy and Allo for

fixed lines, Mobilis and Nedjma with their agencies and internet access with mobile phones (Hamdy, A, 2007).

In 2003, the country inaugurated a program to assure access to ICT through making computers accessible for every house initiative. Some types of media, for instance radio and television, have attained high diffusion rates. Mobile phones are commonplace and the number of Internet users rose rapidly. This is attributable to the number of Internet cafés, shops, and access centers that are accessible, mainly, in urban areas.

To help the entrance of Algeria into the information society, the subsequent national ICT initiatives have been adopted:

- The plan of the Ministry of Education to provide all educational institutions with computers by 2005.
- The Distance Education Plan.
- The Virtual University Plan.
- The research network to be established by the Ministry of Higher Education and Scientific Research.
- The health network enhanced and advocated by the National Health Development Agency (ANDS).
- The Djaweb Internet platform.

2.4.4 ICT Environment in Algerian Education

In Africa, the use of computers in primary and secondary schools is a recent experience (Khan S. H. *et al.*, 2012). For Africa to participate in the global economic environment, a very practised and knowledgeable staff with abilities and proficiencies in the use of Information and Communication Technology (ICT) is fundamental (Lawless K. A. and Pellegrino J. W., 2007) .This requires strategies that endorse broad access to aptitudes and expertise, and particularly the potential to be ICT educated (Swaziland Government Ministry of Education and Training (MoET ,2012).

This can be reached by assuring broad-based formal tutoring, setting up inducements for teachers and students to be involved in permanent training (The Swaziland Education and Training Sector Policy, 2011). It is imperative that all education sectors realize the advantages of investing in ICT and in the infrastructure essential for implementing ICT in education. There is a call for government to team up with the private sector for resource enlistment to finance the application of ICT in education (Ministry of Education and Training (MoET, 2012).

Similar to other developing countries, Algeria encounters challenges in attaining the Millennium Development Goals and Education. With the purpose of broadening access to effective education, Algeria has come up with strategies and policies in a proposal to exploit the role of technology towards constructing a knowledge-based society (Shafika, I. 2007).

The integration of ICT in the education was essentially intended to provide students with central ICT literacy skills (Tapan, S. M. 2009). The endeavour of this study is to provide review of the teachers' willingness of integrating ICT in their classroom instruction process, taking into account the challenges met in the classrooms. It is wished that the study will be helpful to policy makers, teachers, and other decision-makers who are essentially involved in integrating ICT in education sectors in other developing countries.

Just like any mission implementing technology into schools needs an integration strategy. The strategy should be made not for the unique objective of using technology in the classroom but to reveal the factual necessities of schools in order that the implemented technology can be successful. Absence of funding and insufficient scheduling has been regarded as two chief obstacles to the application of the ICT plan (Shafika, I. 2007).Technology integration has endured failure as a result of little or no expert improvement projects, and the absence of national strategies on ICT education (UNESCO, ICTs and Education Indicators,2006& Gilakjani, A. P. 2012).

The Algerian government is anticipated to present a project for the implementation of ICT into the educational system. The reform of the educational process and integration of ICT with a set design was officially assimilated in the country's official ICT plan in June 2002 with a portion of three billion dinar (Hamdy, A.2007).For the primary and secondary schools, the ICT policy has been limited to the administration and educator training. The use of computer labs at primary schools lingers subject to restricted deployments and by parents and community members' deployments. When it comes to higher education, all universities are equipped with computer labs and Internet access for faculty, students, and administration plus the accessibility to digital libraries.

Each university has created its own ICT strategy to improve and speed up the educational development. The objective is giving improved learning opportunities in either virtual, distance or open universities. When it comes to the point of planning a framework to improve the level of ICT access and training in education, the Algerian government has signed some accords with international associations. There are a number of projects that have been taken on as an endeavour to enhance the quality of teaching and learning (Hamdy, 2007). The related policies, under the title of e-learning, were undertaken to:

- Prop up the expansion of e-learning supplies.
- Endorse public-private co-operations to organize resources so as to shore up e-learning projects.
- Endorse the development of integrated e-learning curriculum to support ICT in education.
- Endorse distance education and virtual institutions, mainly in higher education and training.
- Endorse the construction of a national ICT centre of excellence.
- Supply affordable infrastructure to help distribution of knowledge and skill via e-learning platforms.

- Endorse the improvement of content to meet the educational requirements of primary, secondary, and higher institutions.
- Raise awareness of the opportunities proffered by ICT as an educational device to the education area.
- Enable contribution of e-learning resources between institutions.

The Algerian initiative of ICT training devoted to teachers remains partial to the essential data. Though secondary school teachers and middle school teachers are supposed to get the fundamental ICT training, this has so far been identified very small impact on the quality or approach of giving instruction in the classroom. Main training elements to promote an ICT skill for the Algerian teachers are:

- Essential ICT training: fundamental operations, Windows-based software, e-mail, and Internet
- Transitional training: classroom usages, Internet for teaching, and e-mail as a way for communication and partnership
- Higher training: improvement and plan of educational software, on-line classes, telecommunication, e-mailing, creation of interactive Web sites, design of multimedia presentations, constructing creative job.

ICT use in education is at a chiefly dynamic phase in Algeria; new expansions and initiatives are expected to develop and promote the proper integration of ICT in education. Then, these plans should be considered as a demonstration which was up to date at the time they were designed; it is obvious that some data and statistics mentioned in this research study may become dated so quickly. It is supposed that individual Country Reports from the Survey of ICT and Education in Africa will be eventually updated in an interactive action founded on further research and feedback received via the info-Dev web site (Hamdy, 2007).

Though, there is no evidence on the efficiency of the new curriculum, and it is not obvious if the new curriculum fulfils the basic needs in the ICT preparation of teachers. Albeit there have been new attempts associated with the implementation of

ICT, the subject is short of widespread research studies to find out the current status of ICT integration in the teaching learning process in Algerian university.

2.5 Research Instruments

In the main, there are diverse processes of collecting data. The major instruments employed in the mixed method researches involve closed-ended, open-ended questionnaires in addition to structured and unstructured interviews. These different means of gathering information can enhance each other and thus increase the validity and reliability of the data. Generally, the quantitative data are got through closed-ended questionnaires and the qualitative data through open-ended questionnaires and interviews. The items of the questionnaires are mostly structured on the basis of the research objectives and research questions.

A. Questionnaires

Questionnaires are almost certainly one of the main sources of collecting data in any research attempt. Though, the significant point is that when planning a questionnaire, the researcher should check that it is "valid, reliable and unambiguous" (Richards & Schmidt, 2002, p. 438). Over all, questionnaires could be done in three types:

- closed-ended (or structured) questionnaires
- Open-ended (or unstructured) questionnaires
- A mixture of closed-ended and open-ended questionnaires.

As a matter of fact, closed-ended questionnaires supply the investigator with quantitative or statistical data and open-ended questionnaires with qualitative or wording data. In this focus, Blaxter et al. (2006, p. 170) carve up questionnaires into "seven basic question types: quantity or information, category, list or multiple choice, scale, ranking, complex grid or table, and open-ended." In general, a questionnaire might exploit one or several types of these question structures.

The fact is that each type of questionnaire has its own potencies and delicateness. Seliger and Shohamy (1989) held the belief that closed-ended questionnaires are more effective owing to their easiness of analysis. On the other

hand, Gillham (2000, p. 5) maintains that "open questions can lead to a greater level of discovery." He also owns up the complexity of analyzing open-ended questionnaires. In this focus, Alderson and Scott (1996, p. 53) admit the value of qualitative data but claim that "their open-ended nature made it more difficult to compare reports of discussions and interviews …"The essential matter in open-ended questions is that the responses to these types of "questions will more accurately reflect what the respondent wants to say" (Nunan, 1999, p. 143). So, it is better that any questionnaire comprise both closed-ended and open-ended questions to enhance each other.

It is safe to state that properly designed questionnaires have a lot of benefits. The subsequent statements are some of the benefits of the questionnaires (Seliger & Shohamy 1989; Robinson, 1991; Lynch, 1996; Nunan, 1999; Gillham, 2000; Brown, 2001).

- They are one of the efficient instruments of obtaining data on a large-scale basis.
- They can be posted concurrently to a big number of persons.
- The researcher can with ease collect data in subjects' contexts.
- Respondents' anonymity makes them to share data more effortlessly.
- While similar questions are dispensed concurrently to a big number of people, obtained data are more matching, accurate and standard.
- They are a time-efficient means of gathering information from large population.
- Closed-ended questionnaires can effortlessly be analyzed in a simple way.
- They are cost-efficient.

Conversely, questionnaires have some drawbacks which should be remembered whenever and wherever they are employed (Gillham, 2000; Brown, 2001).

- At times the answers are imprecise and debatable.
- There is frequently low return rate when dispensed or posted by email.
- Abstraction and obscurity of some questions might lead to incorrect and unconnected responses.
- Some questions may cause misinterpretation.

- Wording of the questions might influence the respondents' responses.

Generally, there are diverse types of developing questionnaires which each one has its own benefits and drawbacks. For example, when the respondents are beyond the reach of the surveyor, they might be sent by post. Though, the return rate of this procedure is quite low. They can also be sent by e-mail. In this protocol the return rate is a somehow higher than by post because it is easier for the respondents to return them.

Furthermore, they might be given out through the telephone. In this protocol the respondent is somewhat compelled to reply the questions. At last, they can be meting out face-to-face. In this protocol as well the respondents are quite obliged to reply the questions; in order that the return rate is high and any unclear question can be elucidated immediately by the researcher (Gillham, 2000).Then again, Brown (2001, p. 6) divides administering questionnaires into two types. The first one is the self-administered questionnaire which is typically sent to the indented respondents. This process has some main faults.

That is, the respondents frequently do not return the questionnaire. Also, if any misinterpretations occur, or if there be any blurred questions, the researcher is not presented to explain them. After all, the researcher does not know how the questions were answered. The second type is the group administered questionnaire. In this process the questionnaire "is administered to the groups of individuals all at one time and place …" (ibid). It is supposed that this way of administering the questionnaire is more favourable than the self-administered one. Namely, the return rate is high, the researcher is there to clarify any ambiguous questions and the researcher knows the circumstances under which the questionnaires were completed.

B. Interviews

The second major type of data to be obtained in the mixed method design is the interview. Burns (1999, p. 118) argues that "Interviews are a popular and widely used means of collecting qualitative data." To this objective, the researcher attempts to get firsthand data directly from some well-informed informants. The investigator plans "to obtain a special kind of information" (Merriam, 1998, p. 71) and explores for himself/herself what is proceeding in the respondents' mind. The idea is that the

researcher cannot observe the informants' emotions and thinking, so that interviewing is a means to know what and how people realize and "interpret the world around them" (ibid: 72). In this point, Flick (2006, p. 160) adds that the intention of interview "is to reveal existing knowledge in a way that can be expressed in the form of answers and so become accessible to interpretation."

On the whole, interview can be carried out in two types: person-to-person and group or collective types. Merriam (1998) considers that both of these types of interview are a form of target oriented conversation. Mostly, Johnson and Turner (2003, p. 308) list the potencies of the interview meet as follows:

- Good for gauging attitudes and mainly other subject of interest.
- Enable searching by the interview.
- Can offer in-depth information.
- Permit efficient analytic validity.
- Extremely rapid turnaround for telephone interviews.
- Quite high measurement validity for well-developed and well- assessed interview procedures.
- Moderately high response rates frequently achievable.
- Helpful for investigation and corroboration.

Weaknesses:

- In-person interviews costly and time-consuming.
- Supposed anonymity by respondents probably low.
- Data analysis at times time-consuming for open-ended items.

There are some diverse types of interviews. The decision to opt for one over another relies on the intention of the inquirer, the kind of information, fact under investigation, etc. Merriam (1998, p. 72) affirms that our option depends on "determining the amount of structure desired." Patton (1990, p. 288-9) carves up interviews into four main types:

- Informal conversation interview
- Interview guide approach

- Structured open-ended interview
- Closed, fixed response interviews

The informal conversation interview is generally performed without any prearranged questions and without any organization. The questions come out from the natural stream of conversation. This type of interview is exploratory in nature and certainly complicated for the novice investigators. At the other side of the continuum is the structured open-ended interview. In this type of interview the questions are prearranged with almost predetermined organization.

Nonetheless, this type of interview is also inflexible and "adhering to predetermined questions may not allow you to access participants‟ perspectives and understandings of the world" (Merriam, 1998, p. 74). Moreover, the closed or fixed response of the interview is comparable to a closed-ended questionnaire wherein the respondent only replies the interviewer's questions in a determined structure and organization. In fact, the respondent is not free to express himself/herself. This type of interviewing is too mechanistic and not interesting for the interviewee. Still, at mid-position on the continuum is the interview guide approach.

In this type of interview, the themes and questions are identified but they can be rephrased in any series according to the condition. One of the benefits of the interview guide approach is that the gathered data "can later be compared and contrasted" (Fraenkel & Wallen, 2003, p. 456). In this approach data gathering is rather systematic and conversational.

In addition, interviews can frequently be identified on the basis of the kind of control that the investigator practices over the conversation. In this point, Burns (1999, p. 119) spotlights three types of interviews: structured, semi-structured and unstructured. It can be asserted that Patton's (1990) and Burns' (1999) proposals are quite alike. However, Patton's list holds one more alternative. These forms of interviews are exemplified in the figure 2.1 in the following page.

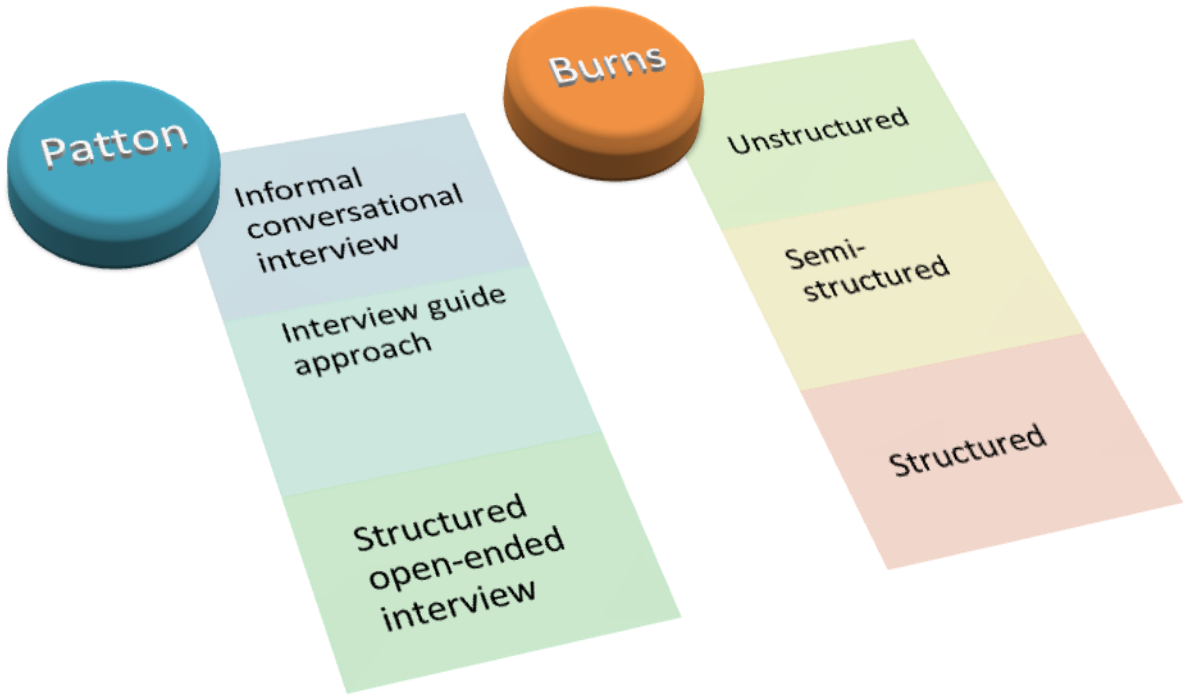

Figure 2.1: Types of interviews according to Patton and Burns

Evidently, the most favoured form of interview is the semi-structured interview guide approach. This form of interview is flexible and permits the interviewee to give more information than the other ones. This type of interview is "neither too rigid nor too open" (Zohrabi, M, 2013, P.256). It is a middling type wherein a large quantity of data can be drawn out from the interviewee.

The central point in any interview structure is the nature of the questions that are asked. The interviewer can design questions according to the focal point of the research. So as to acquire more pertinent facts from the interviewee, the inquirer should ask adequate questions. To this end, Flick (2006, p. 160) suggests that "the different types of questions allow the researchers to deal more explicitly with the presuppositions they bring to the interview in relation to aspects of the interview."

Moreover, the interviewer should use familiar language so that to get more data. Fraenkel and Wallen (2003) consider that technical jargons can be employed in the

scientific contexts and the interviewer should employ common daily language during the interview process. Merriam (1998) warns against using the subsequent style of questions: Multiple questions (e.g. How do you feel about the instructors and classes?), Leading questions (e.g. what emotional troubles have you had since leaving your occupation?) and Yes-or-no questions (e.g. has returning to school been difficult?)

Generally, multiple questions muddle up the respondents. Merriam (1998) shows that leading questions reveal a bias or an assumption that the researcher is making, which may not be held by the participants. These set the respondent up to accept the researcher's point of view. Finally, the yes-or-no questions barely give any helpful and pertinent information.

In the intervening time, the inquirer should seek to find out some knowledgeable and suitable informants. For the sake of getting more valid and consistent data, the interviewer should choose the informants more thoroughly. There are different methods of pinpointing appropriate respondents. First of all, the investigator can find a knowledgeable person according to his/her experience and to site observations. The second method is asking other participants to present a dependable respondent. Finally, the person being presented can also be asked to present other key respondent in the domain.

In any interview attempt, the interviewer should elucidate to the informants the objective of the interview. Flick (2006, p. 169) declares that you should endeavours "to create a good atmosphere in the interview and to give room to your 256 interviewees to open up." The interviewer should try to think about the following points during the interview process (Merriam, 1998; Fraenkel & Wallen, 2003; Johnson & Turner, 2003; Flick, 2006):

- The interviewees should be provided with context to express their views.
- The interviewer should be nonjudgmental and nonaligned throughout the interview.
- The interviewer should be deferential, natural and nonthreatening.

- The interviewer should construct relationship.
- The interviewer should not interrupt.

Generally, the interview can be written down in three methods (Merriam, 1998). The first way is tape recording the interview. The second method is note taking. In this method the interviewer manages to note down the main points during the interview process. The final method is to try to record every detail of the interview immediately after the interview. This means of recording data is not advocated since it is difficult and rather an inconsistent and mistaken way of gathering data.

2.5.1 Instruments' Validity

The standards arousing naturalistic and/or qualitative research are founded on the fact that validity is a subject of honesty, usefulness and reliability that the assessor and the different stakeholders put into it. As Merriam (1998, p. 202) asserts in qualitative research "reality is holistic, multidimensional and ever-changing." Hence, it is up to the inquirer and research participants who endeavour to construct soundness into the diverse steps of the study from data collection through to data analysis and interpretation. On the whole, soundness is related to whether our research is credible and factual and whether it is assessing what it is presumed or contends to assess. In this context, Burns (1999, p. 160) underlines that "validity is an essential criterion for evaluating the quality and acceptability of research." In the main, inquirers exploit different tools to gather information. So, the attribute of these tools is very significant because "the conclusions researchers are based on the information they obtain using these instruments" (Fraenkel & Wallen, 2003, p. 158). Accordingly, it is critical that the information and the research tools to be authenticated. Generally, the next varied processes can be employed to authenticate the tools and the information.

A. Content Validity

Content validity is concerned with a form of validity wherein different constituents, abilities and behaviours are effectively and efficiently gauged. For this reason; the research tools and the data might be reconsidered by the specialists in the scope of research. According to reviewers' comments, the blurred and vague questions can be changed and the complicated points rephrased. Also, the useless and

non functioning questions can be removed in total. Besides, the questions could be face authenticated by reviewers.

B. Internal Validity

Essentially, internal validity is concerned with the relationship of the research findings with the actuality. Also, it delineates the level to which the inquirer observes and assesses what is presumed to be assessed. In general, to boost up the internal validity of the research data and tools, the inquirer might use the next six methods proposed by Merriam (1998): triangulation, member checks, long-term observation at research site, peer examination, participatory or collaborative form s of research and inquirer's bias.

- *Triangulation:* So as to reinforce the validity of assessment data and findings, the researcher should attempt to gather information through different sources: questionnaires and interviews. Gathering data through one method can be problematic, biased and ineffective. Though, acquiring data from diversity of sources and with a diversity of methods can corroborate findings. Thus, if we get similar results, we can become certain that the data are valid. Surely, throughout triangulation we can collect qualitative and quantitative data that confirm our findings.
- *Member checks:* Through member checks the results and interpretations are retracted to the participants to be corroborated and authenticated. Then, the results and interpretations of interviews might be entrusted to the interviewees so as to corroborate the content of what they have affirmed throughout the interview encounter. Along these lines, the credibility and reliability of the data can be realized and upholder. One of the major disadvantages of the observation is the reactivity problem. Specifically, the students react differently due to the investigator's attendance in the classroom. To avoid this issue, Johnson and Turner (2003, p. 312) propose that reactivity might "decrease significantly after the researcher has been observing for a while." The idea is that at the first session the observers should not record or take notes. Namely,

they should only be seated and observe and let "the students become accustomed to their presence and go about their usual activities" (Fraenkel & Wallen, 2003, p. 453). Thus, it is better that the observers start to concentrate on the classroom, students' and teachers' activities and performances from the second and third session forwards.

- *Long-term observation:* Repeated observations over an extended period of time can naturally enhance the validity of research data and findings. The researcher should try to visit different classes in order to obtain the intended information. The observation continues as long as the saturation point is achieved.
- *Peer examination:* In peer examination procedure the research data and findings are reconsidered and critically assessed by some nonparticipants in the field. Though, these colleagues should be familiar with the subject matter under investigation and get sufficient backdrop data in it. Hence, the inquirer can ask two or three knowledgeable specialists who have taught the same course for several years to revise and assess the interview, classroom observation and questionnaire information and findings. It is assured that the credibility of data analysis and interpretations by these colleagues can extremely boost the soundness of the research.
- *Participatory or collaborative modes of research:* This denotes that the inquirer should attempt to engage most of the participants in all steps of study. The objective "is to arrive at evaluation conclusions as a result of a consensus among persons from different perspectives in relation to the program" (Lynch, 1996, p. 62). Obviously, it is not easy for the investigator to carry out a study single-handedly. But communicating opinions with different students and instructors can reinforce the research findings and interpretations. The investigator should, then, attempt to engage the students, language experts, subject experts and program staff in the different stages of the research to strengthen the credibility of the research. Their diverse ideas and opinions can be functional and helpful.
- *Researcher's bias:* It is obvious that each investigator has his/ her personal definite values, principles and outlooks. The notion is that the researcher should

attempt to gather, analyze and decipher data as objectively as possible. The investigator should be precise, critical and trustworthy at diverse stages of the research process. Then, the inquirer should seek to be as nonjudgmental and explicable as possible all through the study process. He/ She should attempt to adhere to the moral regulations and beliefs, conduct the assessment as correctly as possible and state the findings truthfully.

C. Utility Criterion

Over and above the aforementioned six criteria that ensure and support the validity process, we can append the utility criterion. Lynch (1996, p. 63) affirms that "Utility refers to the degree of usefulness the evaluation findings have for administrators, managers and other stakeholders." This criterion refers to find out whether or not the study works. That is, utility criterion enquires whether the assessment endeavour acquires enough data for the decision-makers regarding the efficiency and suitability of the plan. Evidently, while the assessment process supplies the different stakeholders with accurate and adequate data, it can be inferred that the utility criterion has been stressed up on and therefore reached validity basis.

D. External Validity

One more matter to be reflected on is the external validity. External validity is related to the appropriateness of the findings in different settings or with different subjects. As Burns (1999, p. 160) reports "How generalisable to the other contexts or subjects is our research." Actually, it might hinge on the fundamental common points between our background and other backgrounds.

2.5.2 Instruments' Reliability

One of the major conditions of any investigation process is the reliability of the information and findings. Generally, reliability refers to the constancy, soundness and faithfulness of "the results obtained from a piece of research" (Nunan, 1999, p. 14). Getting the same results in quantitative research is quite easy since our data are in statistical outline. Though, in qualitative approaches to research attaining the same

results are rather challenging and complicated. It is because the data are in descriptive structure and biased. In this regard, Lincoln and Guba (1985, p. 288) identify that rather than acquiring the identical results, it is better to consider the reliability and constancy of the data.

In this case, the objective is not to get the similar results rather to concur that founded on the data gathering processes the findings and results are constant and trusty. Merriam (1998, p. 206) considers that "the human instrument can become more reliable through training and practice." Generally, Lincoln and Guba (1985) and Merriam (1998) recommend that the soundness of the results can be achieved through the exploit of three techniques: the researcher's position, triangulation and audit trial.

- *The researcher's position:* With the purpose of boosting the reliability of the research, the researcher should elucidate clearly the different processes and steps of the study. Consequently, the researcher should develop each aspect of the research. He/ She should explain in depth the underlying principles of the research, plan of the research and the subjects.
- *Triangulation:* The investigator should employ diverse processes such as questionnaires, interviews and classroom observations to gather information. Also, this data must be acquired through diverse sources for example apprentices, students, ex- students, language teachers, subject teachers and program personnel. Hence, collecting different kinds of data via diverse sources can improve the dependability of the data and the results. Thus, the reproduction of the research can be conducted quite effortlessly.
- *Audit trial:* So as to accomplish this procedure, the inquirer should explain thoroughly how the data are obtained, how they are evaluated, how different aspects are developed and how the results are attained. So, this thorough data can aid reproduce the study and add to its consistency.

2.5.3 External Reliability

In general, external reliability is related to the reproduction of the research. As Burns (1999, p. 21-20) declares "Could an independent researcher reproduce the study

and obtain results similar to the original study?" It is supposed that the external reliability of the research can be raised if the investigator pays attention to five essential aspects of the study (LeCompte & Goetz, 1982; Nunan, 1999). These five aspects involve the status of the researcher, the choice of informants, the social situations and conditions, the analytic constructs and premises and the methods of data collection and analysis.

A- The status of the researcher: This aspect necessitates that the investigator's social position regarding the participants of the research to be elucidated.

B- The choice of informants: This aspect requires that the researcher depict the participants as completely as possible. Hence, if any autonomous researcher wished to reproduce the research, it could be done rather simply.

C- The social situations and conditions: The research might be carried out in an academic site, as a result, the social situation and condition is quite constant and consistent for most of the students. Namely, all the students have equivalent chance to acquire and be trained English language. Though, it is obvious that there are serious dissimilarities among the students from the adeptness, social and economic standpoints.

D- The analytic constructs and premises: The central terms, designs, descriptions, components of analysis and basis should be defined and their essential theories tackled overtly. For that reason, the recognition and depiction of design and basis can facilitate the process of reproduction and therefore increase reliability.

E- Methods of data collection and analysis: The diverse processes of gathering information ought to be overtly elucidated. The major methods of collecting data in mixed method research are questionnaires, interviews and classroom observations. Mostly, the quantitative data are analyzed throughout descriptive statistics and qualitative data via descriptive and thematic interpretations.

2.5.4 Internal Reliability

Internal reliability refers to the constancy of gathering, analyzing and interpreting the information. Internal reliability might be reached when an autonomous investigator on reanalyzing the data approaches the comparable findings as the original

investigator. Burns (1999, p. 21) states that "would the same results be obtained by other researchers using the same analysis?" In this research, so as to overcome risks to internal reliability, the researcher has employed the four fundamental strategies proposed by LeCompte and Goetz (1982) and developed by Nunan (1999). These are: the use of low inference descriptors, multiple researchers/participant researchers, peer examination and mechanically recorded data.

2.5.4.1 Low inference descriptors

Low inference descriptors are "easily observable and can be readily quantified (i.e. calculated or gauged)" (Richards & Schmidt, 2002, p. 239). For instance, "asking factual questions" can be calculated or gauged. Conversely, high inference descriptors are types "of behaviour which cannot be observed directly but which has to be inferred" (ibid). Such as, it is not easy to observe and gauge the students' engagement and attention. These reports and accounts improve the internal reliability and any autonomous observer can observe and reproduce them quite effortlessly.

2.5.4.2 Multiple researchers/participant researchers

As Nunan (1999, p. 60) divulges "in much research this is not feasible, because a research team consisting of several members can be extremely expensive." Though, he recommends that the investigator can request the experienced participants to assist him/her to validate and corroborate in the data collection, analysis and interpretations. Hence, the investigator can engage two or more contributors in the analysis, interpretation and confirming conclusions.

2.5.4.3 Peer examination

According to Lecompte and Goetz (1982) this process can be applied through operating and exploiting other researchers' findings. The researcher can employ other researchers' results and conclusions in his/her account. Therefore, the investigator can use some pertinent studies in his/her study that increase the internal dependability.

2.5.4.4 Mechanically recorded data

The interviews can be documented and saved, so, the reanalysis or the reproduction of the data can be quite effortlessly executed by any autonomous researcher. This process can enhance the internal dependability of the data and findings.

Reflection on the validity and dependability of the instruments exploited is essential in ascertaining the effectiveness of a research (Millington, Leierer, & Abadie, 2000). The term validity, as it is related to survey research, can be defined as the extent to which the tool "measures what is purported to be measured" (p. 122) whereas dependability can best be defined as "the extent to which an instrument provides consistent results" (Schloss & Smith, 1999, p.113). So as to confirm that these factors of research are effectively tackled it is critical the investigator presents a good explanation of the link between validity and reliability to the research and a basis for the statistical tests utilized in the interpretation of each of these aspects since "instrument validity deals with appropriateness of information for making decisions" (Jacobs and Chase.1992, p. 32).

Thus, there are some forms of validity data; the one investigators are mostly intrigued in is content validity. Content validation refers to the content and plan of the instruments (Fraenkel & Warren, 2000). There are some aspects that influence content validity positively. Most noteworthy among these are sufficient and suitable content sample in the test, clear objectives, well written test items, and less complicated and biased results (Jacobs & Chase, 1992).

Specialist and peer review of the first instrument is an often employed method to maintain instrument validity in the social sciences and educational studies (Gay, 1987). Consistent with Jacobs and Chase (1992), an "instrument's reliability deals with the consistency of measurements" (p. 32), there are various aspects that affect test reliability. Most important among positive effects are suitable test length to investigate the course content well, enough time for all to finish, a average level of complexity, and clear objectives. The most of the researches measuring reliability of the research

tools have done so through "the standard coefficient of internal consistency" (Cornieles, 2003).

2.6 Reporting the Study

In the main, the results of the entire research process should be stated to the audience. Lynch (1996, p. 174) declares that "The final product of an evaluation is a report, which can take many different forms, depending on the audiences and goals"
By the way, the investigator illustrates the processes that he/she carried out and clarifies in depth the results or conclusions of the research. As Creswell (1994, p. 169) highlights the central point is that "how this outcome compares and contrasts with theories and the literature." Specifically, the results need to be congregated and analysed vis-à-vis other allied studies, theories and so on. The investigator should attempt to describe the research, the results and his/her interpretations as plainly as possible to the audience. Thus, the readers can understand of the entire study "and what the study means to them and to the language teaching profession as a whole" (Brown, 2001, p. 12).

Mostly, the investigator must seek not to upset the different stakeholders. That is, sometimes the results of the research may be challenging and create some contentious issues. Nonetheless, Lynch (1996, p. 9) trusts that "The critical issue is how to communicate the findings of the evaluation honestly and successfully." It is safe to state that the investigator should think about the social and political surroundings of the situation and site and behave accordingly. This does not mean that he/she might make some collaboration. Instead, the investigator should be thoughtful and take into consideration each aspect before stating the results. Creswell (1994, p. 169) justifies that the researcher should report his experiences in order that "allow readers to vicariously experience the challenges he encounters and provide a lens through which readers can view the subject's world." Overall, the inquirer should impart the outcomes according to the pre-agreed targets and objectives of the research.

By and large, there are diverse ways for describing the outcomes. The researcher should, then, describe the findings based on the definite plan wherein the data were collated and analyzed. Brown (2001, p. 253) divides the research plan into

four parts: "purely statistical, statistical with some qualitative, qualitative with some statistics, and purely qualitative." The quantitative research description is often done in numerical modes together with the related tables, charts and figures.

Though, the qualitative research description comes in narrative mode and its structure is rather flexible. As Creswell (1994, p. 168-169) sets it "the results will be presented in descriptive, narrative form rather than as a scientific report." The main issue in this procedure is to report the results as fully and plainly as possible. In qualitative research the investigator endeavours to present the process of study. Namely, the process is more significant than the whole result. As Brown (2001, p. 257) stresses that this report of the "story may differ in structure from project to project and report to report."

Conversely, a research might be a mixture of qualitative and quantitative studies. For that reason, the structure of the description might be in a hybrid mode. Hence, if the plan is a mixed approach, a merger of descriptive and statistical account modes might be provided. Though, Brown (2001, p. 259) warns that "you may need to decide whether it is primarily a statistical study or mainly qualitative in nature". For that reason, the investigator should identify which of the approaches is the prime one and therefore design an account on those bases. Generally, if the investigator approach is a mixed design, the subsequent design might be a practical alternative to present the assessment process and results.

2.7 Methodology Overview

The considerations among supporters of different research theories are still an ongoing matter in the area of social research (Tashakkori & Tedlie, 1998). According to their epistemological credence on the nature of reality and knowledge construction, positivists and constructivists (or interpretivists) have defined their own method to study the phenomena to be explored in the social sciences. In their historical evolutions, mostly two main research methodologies quantitative (first wave) and qualitative (second wave), have got more fame among the social inquirers. Though, it is not the major spotlight of this study to consider theoretical groundwork of these two main movements thoroughly, the investigator holds the belief that there is a must to

mention key points of these debates between qualitative and quantitative methods that ultimately clarify why it was intended to make use of a mixed methods approach (third wave) for this study.

As said by Mertens (2005), mixed method plan is defined as "[the] one in which both quantitative and qualitative methods are used to answer research questions in a single study" (p. 292).Johnson and Onwuegbuzie (2004) show that mixed method lies between quantitative and qualitative research methodologies as a matching approach more willingly than competitive with qualitative and quantitative approaches. Researchers mention that "the goal of mixed methods research is not to replace either of these [Qualitative and Quantitative] approaches but rather to draw from the strengths and minimize the weaknesses of both in single research studies and across studies" (p. 14-15). For given motives, the investigator in this movement utilizes both quantitative and qualitative research approaches within this study plan. Throughout the use of diverse sources, as found in various studies spotlighting methodological issues, the investigator may be in a better status to reinforce the reliability of data.

Employing diverse sources in a research structure is simply defined as the procedure of triangulation of data. In this procedure, investigators mainly explore different data sources to study the phenomena and are supposed to have broad and profound perception of the phenomena (Johnson & Christensen, 2003). In more intricate debates, Greene, Caracelli, and Graham (1989) sum up the value of a mixed method approach as

> "A design strategy is that all methods have inherited biases and limitations, so use of only one method to assess given phenomenon will inevitably yield biased and limited results. However, when two or more methods that have offsetting biases are used to assess a given phenomenon, and the results of these methods converge or corroborate one another, then the validity of inquiry findings is enhanced" (p. 256).

Based on the debate above, the investigator reported four reasons for adopting a mixed method approach in this study (Creswell, Clark, Gutman, & Hanson, 2003; Greene, Caracelli, and Graham, 1989; Johnson & Christensen, 2003; McMillan & Schumacher,

1993; Rudestam & Newton, 1992; Tedlie & Tashakkori, 2002). First, when qualitative and quantitative methods are employed for the same objective, the two methods seek to construct upon each other and proffer knowledge that each alone could not. Second, qualitative and quantitative methods hold biases and supply accuracy and thoroughness to the research study. Third, mixed methods can be employed to raise the validity of data. At last, for the type of current research, mixed method seemed to be the more fitting approach because of different reasons:

(1) There is modest range of investigation found that updates the recent status of the ICT integration into instructors' education programs in Algeria. Then, to realise and analyse the contemporary stipulations in this context, there is a necessity for both qualitative and quantitative research.

(2) Because of varied stipulations (the progress rate of the instructor education program, technical and other supports, etc) in each area, the investigator is compelled to have different participant groups from different areas to increase a broader reflection on the facts. Hence, there was a great must for more quantitative approaches to collate information from this large number of subjects and interpret the broad understanding on the research questions.

(3) Since there are a small number of instruments particularly connected with the study developed, there was a must to expand our own instruments, which could have some downsides. To reduce any issues, the must for more qualitative input from the study background was vital. Using qualitative for quantitative can promote triangulation by corroborating or supplementing each other. Also can assist to best identify and make conclusions from quantitative data.

In this study, quantitative and qualitative instruments were also exploited for methodological triangulation, which was accomplished by collecting data through questionnaire, interviews and classroom observation sessions. Triangulation implies the collating of data from more than one data basis to support each other (Bogdan & Biklen, 1998; Krathwohl, 1993). Over and above data collection, both qualitative and quantitative methods were applied for data analysis and conclusions steps.

The central concept behind a questionnaire is to gauge variables by raising questions and then reporting what arises in research data (Krathwohl, 1993). Popham (1993) suggested the questionnaire for the compilation of information from a large population. The aim of survey research is to generalize from a sample to a population, which allows investigators to make inferences about some traits, distinctive, outlooks, or performance of this population. There are many benefits of employing survey research, comprising the economy of the plan and the fast turnaround in the process of data collection.

Though, the main significant benefit of employing this type of research is the facility to recognize attributes of a large population from a small group of individuals (Creswell, J. W. 2009). Teachers' questionnaire was developed by the researcher on the basis of the related literature (MirandaNet, 2000; Orhun, 2000; Queitzsch, 1997; SCRTEC, 1998) and subjects explored in this study.

So as to apply the theoretical structures and varied methods, this research adapted the concurrent transformative strategy suggested by Creswell (2003). According to this strategy, the theoretical perceptions are exploited as lenses to lead the selection of methods that best help the investigation (see figure 2). Quantitative and qualitative data may have equal or unequal precedence. The data from both qualitative and quantitative bases are incorporated most often throughout the analysis stage; though the incorporation throughout the interpretation stage is also feasible. This is illustrated in the figure 2.2 bellow.

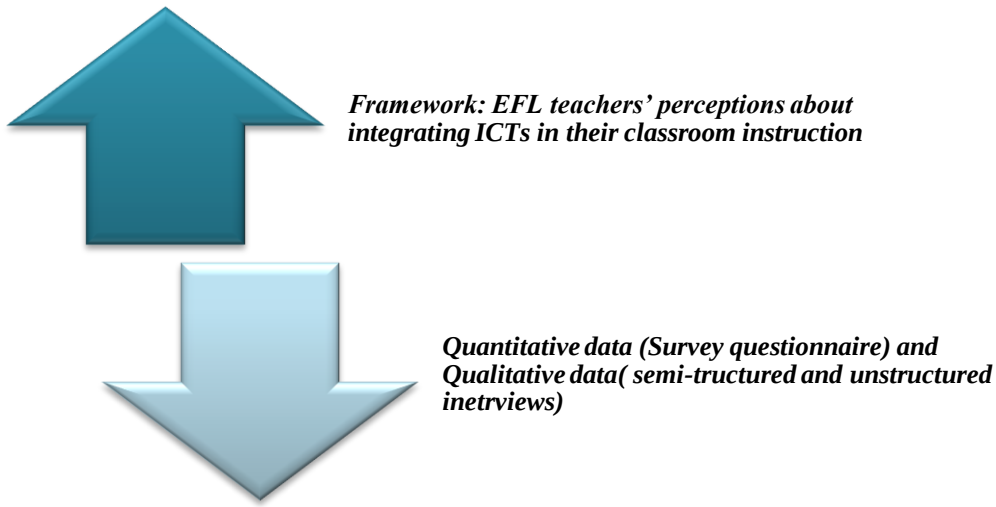

Figure 2.2 Design of the Research Instruments

Following the above figure, the research adopted university teachers' perceptions as a plan for the research strategies and instrument development.

Qualitative data from the interviews and observations take precedence whereas quantitative data from the survey are implanted to provide general standpoints on the findings. The approach of investigation used in quantitative part of the research was a survey, while investigation approaches used in qualitative part were the unstructured interview, the semi-structured interview and participant observations. So, data collection strategies offered both statistical and narrative data that promote alike questions. For example, the study entailed requesting participants to answer open ended questions enquiring about technology implementation in EFL teaching when simultaneously interviewing some participants about the similar questions employing an interview procedure with an open-ended design. This methodology enables the investigator to analyse the statistical information and narrative information from the interviews and to search for examples of resemblances and differences between the two data sources (Tasshakkori &Teddlie, 1998).

The rationale for taking on this methodology is that it gives a high level of flexibility in data compilation as both quantitative and qualitative data are collated concurrently(i.e. the questionnaire is handed out all at once like the semi-structured interview and classroom observation). More to the point, the data collation is an iterative process, to be precise; each instrument is employed to generate one more strategy of investigation, the responses from the survey questionnaire affecting the interview questions and the major points of classroom observation sessions (Suwannasom, 2010).

Dornyei (2007) implies that exploring a survey questionnaire in qualitative research can sort out the subject of small number respondents. As well, it can be employed to spot farthest or usual instances or to underline respondents with definite traits. So, the integration of survey questionnaire in this research study assists the researcher to spot suitable participants, as well as bringing out and exploiting sides of inquiry into ease instance.

2.8 Data Collection

Data were gathered during February-May 2016. Before launching the procedure of data collection, teachers were asked whether they would like to contribute in this research. Respondents reveal their willingness to participate in the study, then the questionnaire was handed out and 174 of these were afterward returned. As the questionnaires were returned, e-mails were sent to those participants who had left their contact and mentioned on the questionnaires that they desired to provide more thorough data about their actual instruction with ICT to participate in the interview. There were five teachers who contributed in semi-structured interview or scenario based interview.

Every interview took about one hour and all interviews were carried out in English language departments and were audio recorded. The five teachers who confirmed considerable use of computers and internet in their teaching process (eg. using in their teaching practices computer labs, Interactive Boards, video conferences or having students create web page online or portfolios for language learning) were requested to partake in semi-structured and unstructured interviews. Those teachers became the key informants who were a wealthy spring of evidence a propos technology mediated teachings. Data collation process is demonstrated in figure 2.3 bellow.

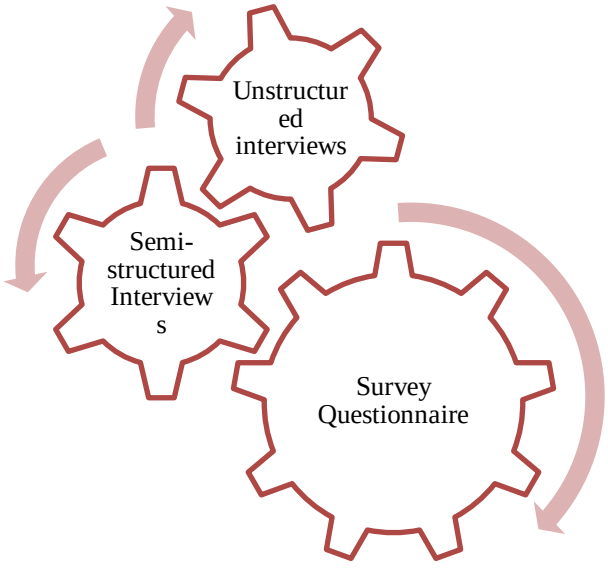

Figure 2.3 Data Collection Process

2.9 Research Instruments

To exploit the potencies of both qualitative and quantitative methods, a mix method research plan was drawn on to bring out teachers' perceptions about technology use in classroom instruction. Quantitative data were collected from teachers' survey questionnaire. Qualitative data were gathered primarily from semi-structured and unstructured interviews. Research instruments and the corresponding research questions are described in the table 2.1in the next page.

Research Questions	Objectives
How effective for the learning process is the integration of Information Communication Technology in classroom instruction?	To collect quantitative data about the effect of integrating ICT in teaching and learning.
How academically appropriate is the integration of ICT for `reconceptualising' the teaching learning process?	To collect qualitative research about teachers pedagogical beliefs and how they perceive the use of ICT in their classroom instructions.
How can the perceived obstacles be challenged for appropriate integration of ICT?	To collect quantitative and qualitative data about the perceived ICT obstacles and challenges and enablers to integrating ICTs in instruction.

Table 2.1 Research Questions and Objectives

As far as the content analysis is concerned, the model by Miles and Huberman (1994) was employed to pilot the process, which entails data reduction, data exhibition, and conclusion drawing / corroboration phases. These processes instigate after the recorded interview sessions were written down into text for analysis utilizing Windows Media Player. Throughout the process of reading and re-reading the collected data, researcher, advisor, and co-advisor of the study discussed the ensuing interpretations.

2.9.1 Teachers' Survey Questionnaire

Teachers' survey questionnaire was arranged to review baseline data on the current status of ICT integration into the teaching learning process within three different

Algerian institutions of higher education. The questionnaire comprises qualitative and quantitative data collection segments. Each question denoted a kind of perception about the baseline data. The questions were developed with the subsequent guidelines (Fink & Kosecoff, 1998):

- ✓ Each question was pertinent to the focus of the study,
- ✓ Each question was specific,
- ✓ Each question tried to shun biased wording or phrasing,
- ✓ Each question held only one thought.

After a broad literature review of instruments used in diverse educational settings (Jones and Clarke, 1994; Robertson et al., 1995; Sooknanan, 2002; Isleem, 2003; Dudeney and Hockly, 2007), a questionnaire was designed to collect information about the perceptions of teachers with different instruction backgrounds toward ICT integration in the teaching process.

Teachers' questionnaire was employed to collect data from 174 university teachers. The questionnaire was made up of two sections. Participants ,in the first section of the questionnaire, were requested to mention some personal information (age, gender, teaching experiences, ICT Related Courses, training about ICT) to assure maximum control of variables (Gay & Airasian, 2000).The second section of the questionnaire consisted of nine (9) items based on a 5-point Likert scale (Strongly Agree, Agree, Neutral, Disagree Strongly, and Disagree). It is worthy to mention that a likert scale is a technique of ascribing quantitative value to qualitative data to make it agreeable to statistical analysis and numerical values that are computed at the end of the evaluation of the questionnaire.

The second part of the questionnaire was divided into three rubrics regarding the integration of the ICT in the following contexts:

- The first rubric of questions included the first three items which brought into focus teachers' perceptions about the use of ICT, their perceived ICT competencies and the effect of integrating ICT on teachers' performance.

- The second part of questions comprised items (from to 4 to 6) spotlighting the effect of integrating ICT on students 'learning, and pointing up the expected benefits and anticipated strategies of integrating ICT.
- The third piece of questions contained items (from 7 to 9) underlining the challenges for integrating ICT, measures of endorsement, and possible enablers for integrating ICT.

The structure of the instrument was piloted by a number of EFL teachers. This board of experts, comprising one teacher of educational technology and two non-native teachers, appraised the instrument for content and face validity and claimed that the questionnaire was suitable and extensive for the context of the research (Appendix A). To ensure the reliability, the instrument was examined through the Cronbach's Alpha Coefficient $\alpha = 0.90$, which confirmed a high level of reliability.

The return rate from teachers' questionnaire was 70.8% (N=8.5). This gave a response rate of 61.2%. The analysis was conducted at the organizational level.

After thorough study of the gathered information, sample of teachers was requested to participate in the interview sessions.

2.9.2 Teachers' Interview

Interview is a major instrument for data collection giving one-to-one interaction between the investigator and the informants being studied. Interview offers investigators and informants a chance to elucidate questions. It also provides a chance to expose extra information about informants' data collection process. Interview and open-ended questions enable the investigator to collate thorough data from the sample. It also provides an ability to bring to light further data regarding the participants' data collection procedure.

Moreover, employing this data collection method allows for triangulation of the information, so increasing dependability and soundness of the data. To best investigate the strengths of the interview procedure as a significant qualitative research instruments, the researcher explores the use of two type of interview protocol that are semi-structured and unstructured scenario-based interview. Conversational interview

strategies were utilized with key informants since this study probes the deep meaning of teachers' perspectives and perceptions about computer and internet use in a given teaching context. Conversely, the semi-structured interviews were employed to reveal what teachers' think about ICT integration in teaching.

A semi-structured interview was conducted with five teachers who had left their contact and mentioned on the questionnaire that they desired to provide more thorough data about their actual instruction with ICT to participate in the interview. This selection of teachers for the interview approach was done through convenience sampling method employing the criterion technique. Convenience sampling approach is non-probability sampling method where subjects are chosen because of their convenient accessibility and propinquity to the investigator (Merrian, 1998). The cause for convenience methodology was chiefly for raising the credibility of the research.

In this study, a semi structured interview was employed to collate in-depth data from teachers. In this type of interview, open-ended questions were designed in advance, based on arranged investigating questions. Unprepared, unexpected points may also be utilized in semi structured interviews (Morse & Richards, 2002). This procedure enables the investigator to deal with the situation at hand, to the rising worldview of the informants, and to innovative thoughts on the topic (Merrian, 1998).

For these motives, an interview guide was developed for teachers. The interview guide was developed by the investigator based on issues explored in this study, a review of related literature, and design utilized in prior studies by Smith (2002) and Zayim (2004). The interview guide was scrutinized first by three graduate student and then four experts, for the lucidity of the questions and how well they addressed the themes in February 2016.

After experts' reviews, pilot sessions were taken on to find out if interview protocol were suitable and to identify if any further interview questions needed to be raised so as to provide answers to the research questions. After the pilot sessions, interview procedure was changed and interview questions toted up and changed. The

semi-structured interview was of 1-hour in duration, and an inventory of questions with reference to the related variables.

The final forms of each interview guide included eleven main questions with a focus on the six topics: (1) personal information, (2) ICT use in classroom, (3) impact of ICT integration (4) possible enablers of integrating ICT (5) main barriers, (6) ICT perceptions. The interview was audio-recorded and transcribed for further analysis. Nonetheless, this does not mean that conversational interviews in this research study were distracted. The conceptions and objectives of the study were still supported through an interview Guide (see Appendix B).

2.10 Data Analysis

At first, both quantitative and qualitative were arranged and sorted out for analysis. The data were classified into types relying on the sources of data. For quantitative information, closed ended items were appointed statistical values. For qualitative information, all interviews were transcribed while field notes were prepared according to data and setting.

Collated data were analyzed using coordinated mixed data analysis, more precisely the concurrent mixed analysis model as explained by Tashakkori and Teddlie (1998). According to them, in survey research, there often is a combination of open-ended and close-ended response options. These close-ended responses are analyzed statistically, and the open-ended responses are content analyzed" (p. 128). In this research work, the quantitative responses were analyzed utilizing descriptive and inferential statistics. The qualitative responses were analyzed utilizing the content analysis.

The descriptive analysis was employed to explore the existing situation of ICT in university teachers' EFL instruction. The data were coded and all set for analysis utilizing the statistical analysis software SPSS. Descriptive statistics were employed to reveal tendencies in that data. Therefore, they involved calculating teachers' responses to the questionnaires. The descriptive statistics were computed means, frequencies,

percentages, and standard divergences of questionnaire items. To analyze descriptive statistics, survey items were clustered according to contextual elements.

The inferential analysis was drawn on to study the major disparities among dependent variable (DV) across independent variables (IVs). As a result, the researcher has used Analysis of Variances (ANOVA) so that to identify if there are relations between independent variables and dependent variable.

a) Independent Variables:

(1) Gender: It is a absolute variable with two levels (1 = male, 2 = female)

(2) Taken ICT related courses: It is a absolute variable with two levels (1 = Yes, 2 = No)

(3) Taken in-service training about ICT: It is a absolute variable with two levels (1 = Yes, 2 = No)

b) Dependent Variables:

Considered ICT competencies: It is a permanent variable with five levels:

5 indicating **"**Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree" and 1 indicating "Strongly Disagree".

For the content analysis, the model by Miles and Huberman (1994) was exploited to pilot the process, which includes data reduction, data display, and conclusion drawing verification phases. These procedures began after the recorded interview sessions were noted down into text for analysis employing Windows Media Player. Throughout the process of interpretation and reading the data analysis, investigator, advisor, and co-advisor of the study examined the findings of the study.

- ✓ *Data reduction:* denotes the procedure of selecting, spotlighting, clarifying, extracting, and changing. Throughout this procedure, data reduction activities incorporated coding and infusing into the prearranged subjects. The investigator arranged these subjects according to the research questions. Then, the open-ended information from questionnaires and the recorded notes of the interview process were coded and infused into the subjects.
- ✓ *Data display:* denotes systematizing and treating data in a manner that allows conclusion drawing and action. In this phase, information about subjects was

structured as identified concepts into data presentation matrixes and prearranged abstracts.

- ✓ *Conclusion drawing / verification:* engages the investigator in extorting meaning from presented data. This concluding phase entailed comparison-contrast, bunching, triangulation, and searching for negative cases. So as to reach interpretative validity, data analysis of this research has been corroborated by the advisor, and co-advisor of the study.

2.10.1 Validity and Reliability of the Study

Verifying validity and reliability for qualitative and quantitative study differs as "the quantitative study must convince the reader that procedures have been followed faithfully while the qualitative study provides the reader with a depiction in enough detail to show that the author's conclusion makes sense" (Merriam, 1998, p.199). In mixed methods research, quantitative and qualitative approaches are blended. In the study, different methods are blended to provide validity and reliability. The main critical issue for validity and reliability is triangulation which entails approaches, data basis, and interpretations being used to enhance validity and reliability of the research (Tashakkori & Teddlie, 1998).

As said by Cresswell (2003) verification is a procedure that arises during data collection, interpretation, and report making of a research, while standards of criteria are required by the investigator and co-advisors after the study is carried out. The model in Table 2.3 was utilized to adopt strategies that would introduce measures of quality into this research. When developing the model, the investigator deliberated employing quantitative and qualitative validity strategies in the study, and combined those in a technique that best fits the mixed research study. The strategies used were internal validity/credibility, external validity/transferability, reliability/dependability, and objectivity/conformability. This is presented in table 2.2 in the next page.

Strategy	**Criteria**	**Application**
Internal validity / credibility	1.Triangulation	1.1.1. The data collection methods, data analysis, and literature review were used to verify interviews and categorization of the data gathered.
	1.2.Member checking	1.2.1. Interview participants reviewed the accuracy of the details in the transcriptions of each interview. Transcripts and open-ended responses were also triangulated with literature.
	1.3. Peer examination	1.3.1. The synthesis of all data gathered was reviewed by peers, advisor, and co-advisor of the study.
	1.4.Researcher's biases	1.4.1. The researcher's assumptions, limitations, delimitations, and theoretical orientation at the outset of the study were clarified.
		1.4.2. The results of the study were compared to the literature in the chapter 5.
External Validity	2.1.Nominated sample	2.1.1. Every used sampling technique and the criteria for selecting participants were provided in "population and sample" sections.
	2.2.Dense Description	2.2.1. A complete description of methodology was given in this chapter (3).
3. Reliability / Dependability	3.1.Dependability Audit	3.1.1. All questions in the instruments were developed after doing a literature review and conducting pilot interviews. A full description of the data analysis protocol is provided in this chapter (3). In addition, advisor and co-advisor of the study provided valuable input with respect to interview and open-ended material.
	3.2.Methodology Triangulation	3.2.1. The research methodology was fully described. The data collection methods and data analysis were used to triangulate and verify interviews and categories were identified from the data gathered.
	3.3.Peer examination	3.3.1. The synthesis of all data gathered was reviewed by peers, advisor, and co-advisor of the study.
	3.4.Evaluation	3.4.1. A consensus discussion of the synthesized data was held with the researcher, advisor, and co-advisor of the study.
	3.5. Reliable transcribe	3.5.1. Tapes/transcripts open to inspection by others.
4. Objectivity / Conformatibility	4.1.Confirmability Audit	4.1.1. The synthesis of all data gathered was reviewed by peers, advisor, and co-advisor of the study.

Table 2.2: The Reliability and Validity Criteria List for the Study (adopted from GÖKTA, Y 2006, p.82)

2.10.2 Quantitative Data Analysis

The answers to the questionnaire items which incorporate five points -likert type scale items were appointed statistical values. Statistical data were entered into the computer and analysed utilizing SPSS. Descriptive statistics (percentages and mean scores) were prepared to review and put forward that data. Frequency and descriptive statistics, tables, and figures were formulated to present results with reference to the research questions.

2.10.3 Qualitative Data Analysis

Qualitative analysis entails recurrent reflection upon data making interpretations about collected information. It requires raising questions and constructing an analysis from the data obtained. Investigators have to adapt the data analysis to particular styles of qualitative research approaches (Creswell, 2003). Given that the major qualitative data in this research were interview account, they were distributed to content analysis which entails not only coding and making significant types, but also evaluating and making links between data, and extracting hypothetical conclusion from the text.

Data analysis was fulfilled by reading all open-ended answers and listening to all recordings and writing out the data into text form. So as to get a broad meaning of the data, all the transcriptions were examined; notes were taken, and broad ideas about the data were transcribed. The data and related instruments were reconsidered and reordered from the initial symbols. At this step, some interview accounts were used and answers were described, related data were collected together and indentified each group according to its traits (e.g. teachers' views about their computer proficiencies, teachers' views about students' aptitude). Table 2.3 in the following page presents instances of emerging categories from the analysis of the open-ended interviews and answers to the questions about the identified advantages of and barriers to technology implementation in teaching practice.

Open –ended answers and interview accounts	***Categories labelled***
"a lot of students do not have internet connection at home". "The computer labs are frequently packed all over the week days". "It's not easy to get them do online activities at a given time". "The computers at the lab haven't got the programme that we need to exploit such as e book or Adobe Photoshop". "Unfortunately, students are not allowed to inaugurate any programs in university computers"	Barriers : lack of training and ICT resources
"Students have difficulty with using language to convey their ideas. They haven't had adequate practice mainly in productive skills such as writing and speaking. Students have troubles with English when they converse. Contributing in an online language task may be too difficult for them since a lot of skills are required".	Barriers: students' low language ability
"Giving a lecture implanted with multimedia elements is always attractive for students. They are engaged more when technology is implemented in the lessons".	Advantages: enhancing language instruction
"Students do not need to study from the same materials like they do in traditional classrooms. They have choice to select what to read, watch, listen, and learn from websites at whenever they desire to".	Advantages: Supporting students' autonomous learning

Table 2.3 Examples of Emerging Categories from the Analysis of Open Ended Answers and Interviews

After main categories were constructed, the investigator searched for comparable or closely related categories which could be collected jointly, under a general label. At the moment, it was found that some particular clusters could be related to the previously made general categories and some new categories developed. For instance, the participants' conceptions about the barriers to technology integration in teaching practice were basically divided into ix sub-divisions: lack of engagement,

students' low language competency, and students' lack of access to computers, students' lack of proficiencies and preparation, students' lack of access to computers, and students' lack of helpful attitudes.

Though, some answers and interview accounts about matters such as class size and limitations of the curriculum were not yet placed in any of the existing categories. Dornyei (2007) implies that the review of the code can be accomplished by re-examining the original transcriptions and recording along with new categories. If the most of the extract suit the new structure, this can be considered as a symbol of reliability of the code. Then, the researcher explored the categories and reformed them. Therefore, the final categories of barriers to technology implementation in teaching were: a) lack of in-service training, b) lack of technical support, c) lack of ICT competencies, d) long standing pedagogical practices.

The subsequently stage of data was organizing the coded data into subjects of analysis. The subjects were analysed, divided into smaller parts and propped by evidence, from manifold sources. Aspects of teachers' knowledge, opinions and perspectives in adopting technology were taken into. Evidence from teachers' quotations, and field notes were employed to prop up the analysis.

2.11 Ethical Consideration

The ethical consideration in this study involves disquiet about participants' right and the sensitivity about personal and professional ethics, thoughts and practices. Survey and interview participants were given a consent form to contribute in the research study. As well, participants were notified of all data gathering instruments and procedures on how data would be employed, which were asserted both orally and in writing. The transcriptions and written descriptions and summaries were also made obtainable to the participants. Most significantly, the participants' identity was maintained confidential by the use of pseudonyms.

Because this study implemented mixed method strategies which exploited both quantitative and qualitative approaches; the matters of validity or trustworthiness and generalisability were taken into account. Construct validity was focussed on to assure

the quality of the survey tools. In line with Fraenkel and Wallen (2003), construct validity indicates the level of confidence that the data given by the questionnaire reveals the actions that are being gauged. In this research, constructs validity is ascertained by evaluating attempts or results that preceding research findings had came up with (e.g. factors such as teachers' opinions, and perspectives about ICT implementation in teaching leaning process) to construct the type of questions and segments of the survey.

The questionnaire items were invented to bring out teachers' perceptions, and perspectives about technology use in teaching according to the review of literature. The survey instrument was also pilot-tested with a group of volunteers who are not so different from the target population. As said by Backer (1994), the pre-testing or trying out of a given research instrument can spot major practical issues in tracing the research process or whether suggested strategies or instruments are unsuitable or too intricate. It is also practical to assess the questionnaire content a well as to find and correct discrepancies between questionnaire items.

Concerning the issue of trustworthiness, Lincoln and Guba (1985) put forward that the objective of trustworthiness in a qualitative research is to prop the argument that the research findings are "worth paying attention to" (p.290). The trustworthiness criteria comprise the perceptions of reliability, transferability, and dependability. Creswell (1998) advocates that a qualitative inquiry should undertake as a minimum two corroboration procedures to assure those credibility criteria. These criteria can be attained by integrating the following methods: enduring engagement, constant observation, triangulation, case analysis, member checking, presenting detailed descriptions, and collecting a review trail.

Thus, the following procedures were used to maintain the dependability of this research. First triangulation of techniques was checked by exploiting different sources of data collation a) questionnaire, semi-structured interviews, unstructured interviews and observations). Second member checking with potential participants was employed to ensure the trustworthiness and correctness of transcriptions (Creswell, 1998; Lincoln and Guba, 1985;Miles& Huberman,1994). The summaries of interview

transcriptions and observations were given to the potential participants to ensure the truthfulness.

For the notion of generalisability, the purpose of this research was not to draw a generalisation, though a survey was carried out. In fact, the survey in this research is considered as a methodological device for acquiring baseline data in addition to selecting key participants for interviews and constructing qualitative data presentation. Such as, interview participants have been determine by exploring the questionnaire to study opportunities for future research. The first round findings from the survey participants' responses provided groundwork from which to construct suitable interview questions that would induce more personalised and contextualised perceptions and actions regarding technology use in teaching. Hence, using quantitative instrument in this research was for the construction and integration of other instruments and triangulating findings from diverse standpoints about teachers' perspectives about technology use in language instruction.

2.12Conclusion

This chapter highlighted the overview of research and theoretical frameworks used in the study. The design, methodology, and strategies that were employed all through the research steps were illustrated and supported with rationales. The investigator also mentioned the attributes of the setting and the research participants. Data collection procedures and the outline of data collation and instruments were tackled and demonstrated. The technique of content analysis was employed to study qualitative data while quantitative data were studied statistically. At last, the issue of trustworthiness and generalisability in addition to ethical consideration were reviewed. From the review of methodology in this chapter; it is implied that the adoption of a mixed method approach and diverse research perspectives can reveal teachers' multi-dimentional views about their personal conception and strategies in technology - mediated EFL teaching in given settings. Therefore, the following chapter will point up findings wherein both quantitative and qualitative data are included.

CHAPTER THREE: ***Data Analysis***

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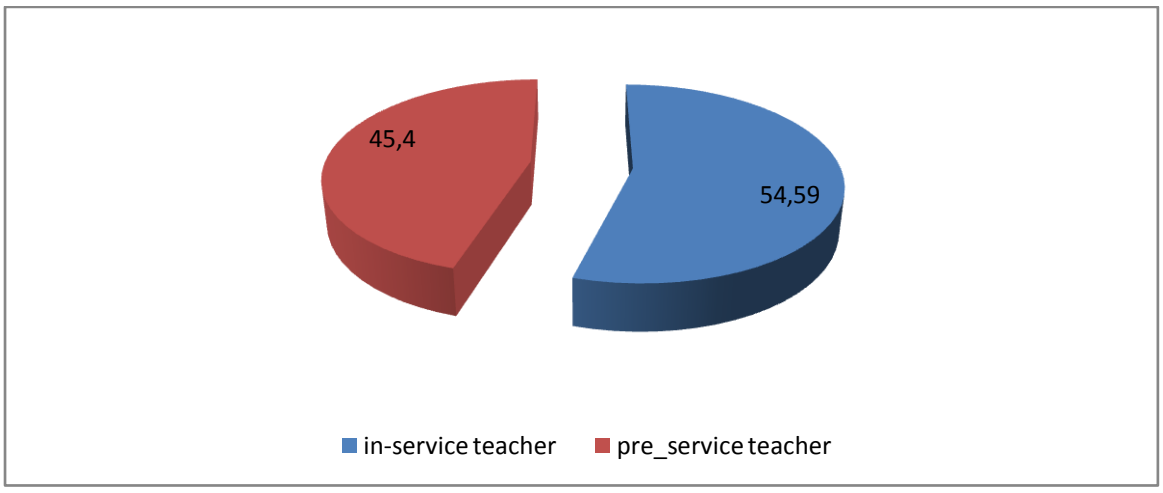
3.1 Introduction

This chapter presents the findings of the study related to research questions stated in the preceding chapter. The focal point of this study is to reflect the current status of ICT in teaching-learning process regarding how teachers are getting prepared to exploit ICT in their classroom instruction as well as the current situation of the Algerian high education regarding how teachers use ICT in their teaching. Before providing the results of this study, demographic data of the participants are shown in the next section. At last, results of the study are presented on the basis of the research questions.

3.2 Participants' Demographic

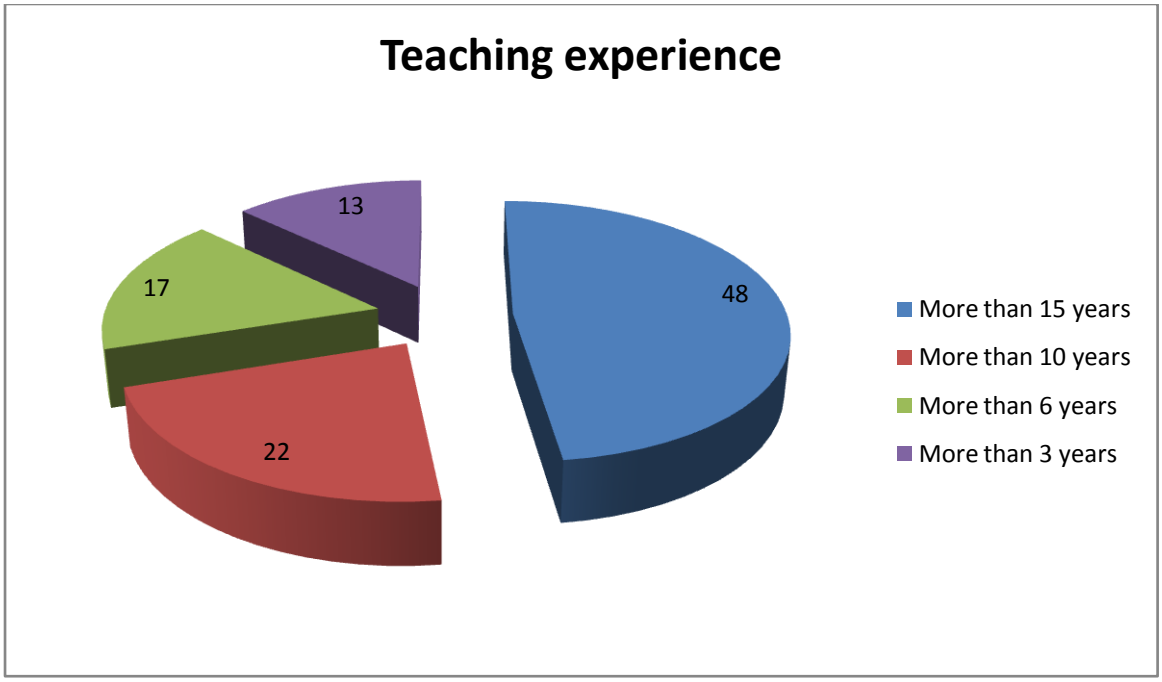
The participant teachers of this study do not "*represent the wider population*" of the Algerian university teachers in order that the finding from this research group are not appropriate for any generalisability; they present specific perspectives of these participating teachers.

The target sample of the study was EFL teachers; they were all full time teachers in English language department at three different Algerian universities so, sampling was purposive (Onwuegbuzie *et al.* 2009). A total of 174 teachers, 89 females and 85 males contributed in this research. Their age ranged between 25 and 52, thus 38 being their average age. 54, 59% of participants were in-service teachers while 45, 40% were pre-service teachers. The following pie-charts illustrate the results obtained:



Pie-chart3.1: Participants' teaching profile

Informants' teaching experiences ranged from 3 to 22years. 35 teachers had 17 years in teaching, 46 teachers had 10 years, 23 had 8 years, 26 had 7 years, 19 had 6 years, 14 had 5 years, 6 had 4 years and 5 had 3 years in teaching. Results are presented in the following pie-chart:



Pie-chart 3.2: Participants' teaching experiences

Gathered data were analyzed employing simultaneous mixed data analysis, more precisely the mixed analysis model as depicted by Tashakkori and Teddlie (1998). As said by them, "in survey research, there often is a combination of open-ended and close-ended response options. These close-ended responses are analyzed statistically, and the open-ended responses are content analyzed" (p. 128). In this research, the quantitative responses were inspected utilizing descriptive and inferential statistics. The qualitative responses were inspected utilizing the content analysis.

3.3. Analysis of the Data

In this study, the descriptive analysis was employed to scrutinize the actual status of ICT integration into higher education EFL teaching learning process. The data were coded and set for analysis using the statistical analysis software SPSS. Descriptive statistics were exploited to describe the conversions in that data. The

descriptive statistics were computing means, and percentages of questionnaire items. They were utilized to examine the major differences amongst dependent variable (DV) across independent variables (IVs). This study investigates the possible correlations between independent variables and dependent variable. The analysis includes three independent variables and one dependent variable:

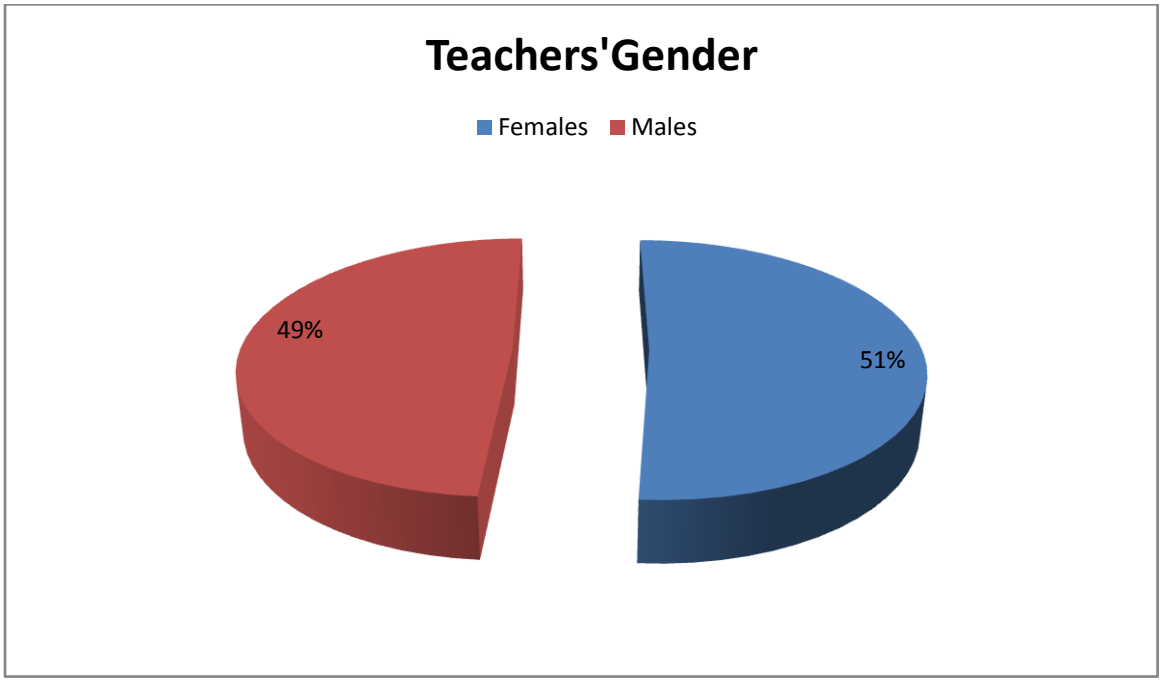
3.3.1 Independent Variables:

(1) Gender: It is a categorical variable with two levels (1 = male, 2 = female)

(2) Taken ICT related courses: It is a categorical variable with two levels (1 = Yes, 2 = No)

(3) Taken in-service training about ICT: It is a categorical variable with two levels (1 = Yes, 2 = No)

3.3.1.1 Gender: Results displayed that there was a critical effect of gender on the perceived ICT proficiencies scores. In the present study, the rate of participating females (51%) exceeds somehow that of participating males (49%). This is shown in the subsequent pie-chart.



Pie –chart 3.3: Participants' gender

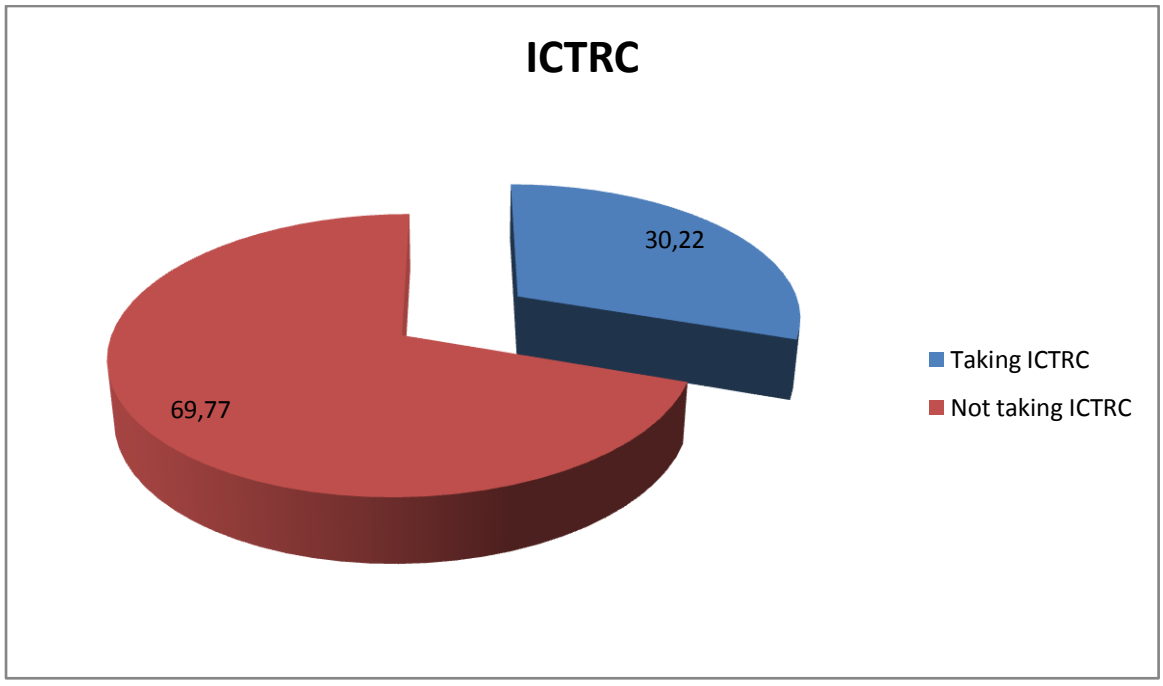
When it comes to the perceived ICT proficiencies, mean score of males were upper than that of females. It might be affirmed that males are considered to be

more proficient to use ICT than females. There are both compatible (Lynch, 2001; Toker, 2004; Torkzadeh, Pflughoeft & Hall, 1999; Watson, 1997) and incompatible (Chao, 2001; 170 Hornung, 2002; Haderlie, 2001; Nanasy, 2001; Snider, 2003) results in the literature about gender and ICT.

This result can be due to the social positions of males and females in the society. While males were anticipated to act more upon technical tasks, females were anticipated to act more upon domestic tasks. Besides, males' tendencies to use ICT and to update their knowledge about it surpass that of females who are said to be less proficient to use ICT (Odabasi, 2003; Toker, 2004).

3.3.1.2 Taken ICT Related Courses:

For ICT Related Courses, 40, 22 % of participants stated that they have taken ICT Related Courses and 59, 77% claimed that they have not. This is presented in the following pie-chart.



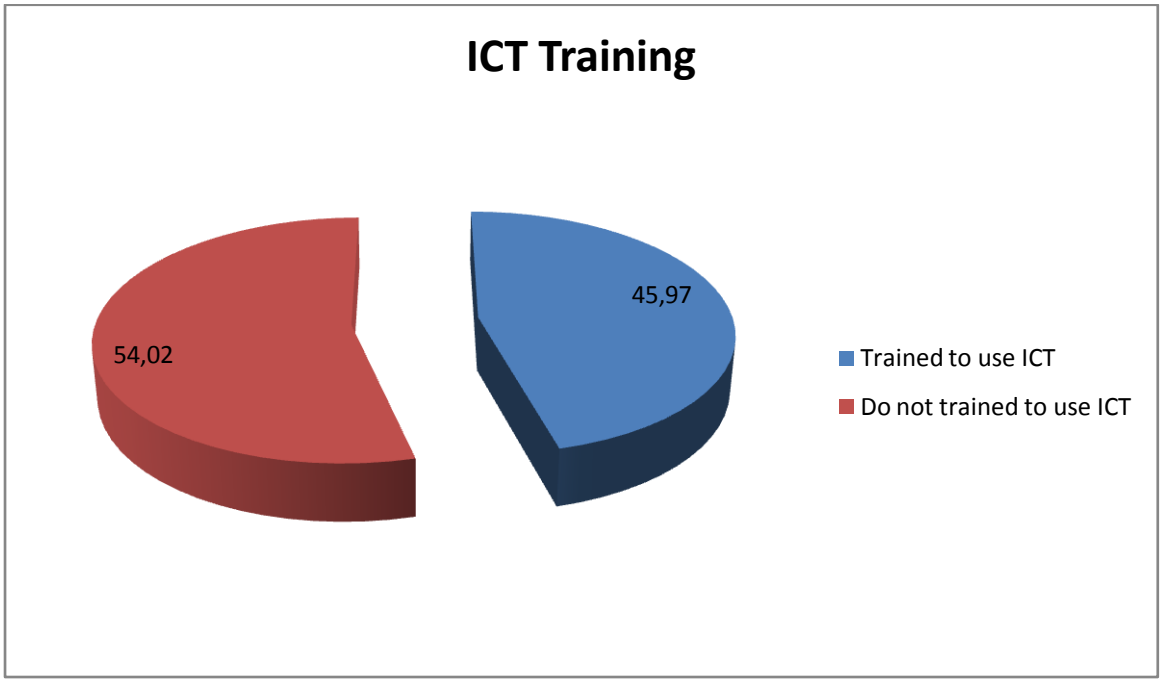
Pie-chart 3.4: ICT Related Courses

In fact, the major aim behind such question is to bring to light the effect of taking ICT related courses on the perceived ICT proficiencies scores. It attempts also to reveal if there is a relationship between taking ICTRC as an independent variable

and the perceived ICT competencies as dependent variables. The results show that more than the half of participants had not taken ICT Related Courses. This could have an impact on participants' perceived ICT competencies .This can be considered as an anticipated result, because one of the main endeavours of these courses is to enhance the level of ICT competencies of teachers. In his study, Altun (2003) found a matching result, which disclosed there was a crucial dissimilarity between those who have taken ICTRC courses and those who have not. Corresponding to this premise, there has been a boost to use ICT in all domains of our daily life.

3.3.1.3 Taken In-service Training about ICT

For ICT training, 45, 97% had been trained to use computer either in a formal way of learning (in computer training centres) or in an informal way of learning (personal efforts). Though, 54, 02% did not have computer training at all as presented in the pie-chart bellow.



Pie-chart 3.5: Participants' training about ICT

This result might have an impact on participants' perceived ICT competencies. The results of an OECD international survey of secondary schools state that 'less

than half of the teachers use computer applications and about four teachers in ten use the Internet' (OECD, 2004). The major objective should not be to raise the number of hours that teachers use ICTs, but to expand and improve the use of information technology in a broad variety of activities within and beyond of the school.

3.3.2 The Dependent Variable:

As tackled in the second part of the questionnaire, the dependent variable in this study is teachers' perceived ICT competencies. It is a continuous variable with five levels: (5 indicating "Completely Sufficient", 4 indicating "Sufficient", 3 indicating "Neutral", 2 indicating "Insufficient", and 1 indicating "Completely Insufficient"). It contains two sub-scales; which are basic ICT competencies and advanced ICT competencies.

3.4 Results and Discussion

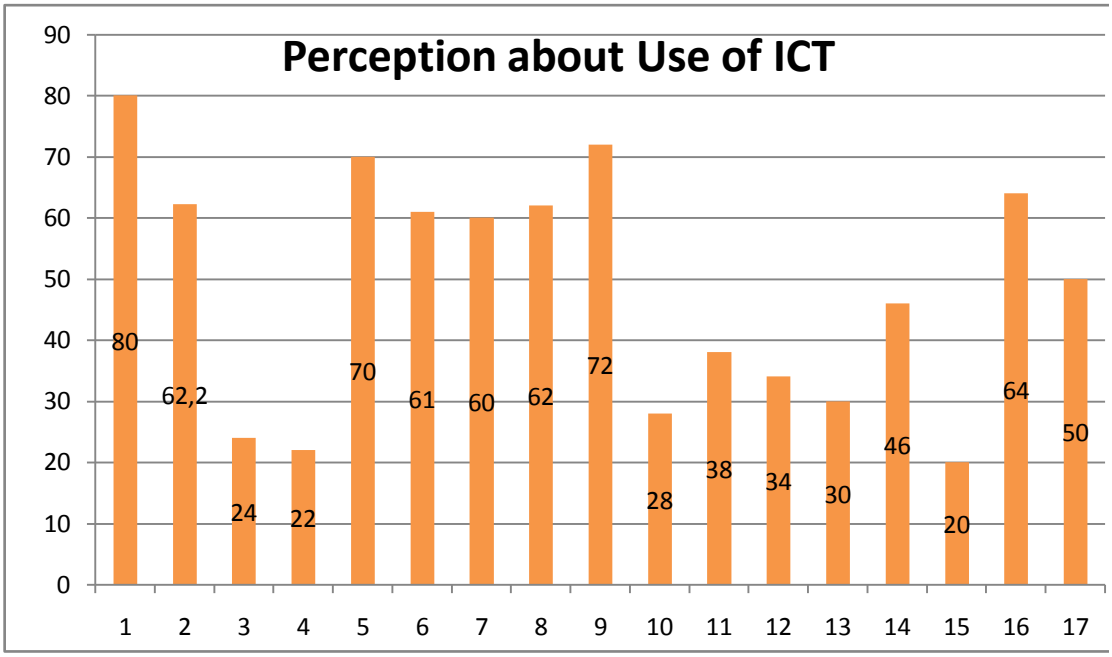
In what follows we will discuss perceptions and competencies, the impact of integrating ICT, the challenges, and the measures of endorsement and enablers

3.4.1 Perceptions and Competencies

3.4.1.1 Teachers' Perceptions: Findings Related to Question 1

The first research question underlined in this study was about the perceptions of university teachers regarding ICT integration into their classroom instruction. The data for teachers' perceptions were collected with a Likert-type scale questionnaire and interviews.

The perception items of teachers in the technology perception scale (TPS) comprised their notions of the impact of technology on the teaching learning process. The participants graded their levels of accord with the statements by employing a five-point Likert-type scale questionnaire (5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree"). The mean scores and percentages are pointed up in the following figure.



1.Use of ICT in classroom enriches teaching/learning environment

2.Use of ICT in classroom creates an effective learning environment

3.Use of ICT in classroom provides feedback

4.Use of ICT in classroom increases student achievement.

5.Use of ICT in classroom provides 'authentic' experiences

6.Use of ICT in classroom provides opportunities that traditional instruction cannot provide

7.Use of ICT in classroom replaces the traditional teaching aids by new ICT tools.

8.Use of ICT in classroom maintains edutainment in classroom environment

9.Use of ICT in classroom supports teachers to plan in-class activities

10.Use of ICT in classroom supports teachers to evaluate in-class activities

11.Use of ICT in classroom employs a range of assessment methods

12.Use of ICT in classroom maintains appropriate, sustained ICT professional development for teachers and students

13.Use of ICT in classroom manages learning

14.Use of ICT in classroom extends beyond the lesson

15.Use of ICT in classroom manages time and pace well

16.Use of ICT in classroom helps teachers implementing in class activities

17.Use of ICT in classroom provides staff with personal access to ICT

Bar-graph 1.3: Percentages of the selected perceptions statements about the use of technology in EFL teaching

In the first question of the second section of teachers' questionnaire (see Appendix A), participants teachers were requested to choose items to point out their perceptions about the integration of technology in their teaching.

Results in table3.1 in the subsequent page show that participants have positive perceptions as regards the integration of technology in classrooms. When the items are analysed, it can be noticed that participants teachers agreed that the use of ICT could enrich teaching/learning environment (M=4) support teachers to plan in-class activities (M=3.6), and offer 'authentic' experiences of teaching and learning (M=3.5). Participants' teachers agreed that the use of ICT is useful to implement in- class activities (M=3.2), to create an effective learning environment and provide edutainment in classroom environment (M=3.11). Participants reported that integrating ICT is beneficial to replace the traditional teaching aids by new ICT tools (M=3), to provide opportunities that traditional instruction cannot provide (M=3.05), to provide staff with personal access to ICT (M=2.5), and to extending beyond the lesson (M=2.3).

Conversely, informant teachers do not really believe that the use of ICT would support students' learning; the lowest mean score were for the items "using a range of assessment methods" (M=1..9),sustained ICT professional development for teachers and students "(M=1.7), "managing learning"(M=1.5),"evaluate in-class activities" (M=1.4), "providing feedback"(M=1.2) ,"increasing student achievement" (M=1.1), and "Managing time and pace well"(M=1). Table 3.1 in the next page tackles the results in details.

Teachers' perceptions	***M***	***%***
Use of ICT in classroom enriches teaching/learning environment	4	80
Use of ICT in classroom creates an effective learning environment	3.11	62.2
Use of ICT in classroom provides feedback.	1.2	24
Use of ICT in classroom increases student achievement.	1.1	22
Use of ICT in classroom provides 'authentic' experiences	3.5	70
Use of ICT in classroom provides opportunities that traditional instruction cannot provide	3.05	61
Use of ICT in classroom replaces the traditional teaching aids by new ICT tools.	3	60
Use of ICT in classroom maintains edutainment in classroom environment	3.1	62
Use of ICT in classroom supports teachers to plan in-class activities.	3.6	72
Use of ICT in classroom supports teachers to evaluate in-class activities.	1.4	28
Use of ICT in classroom employs a range of assessment methods	1.9	38
Use of ICT in classroom maintains appropriate, sustained ICT professional development for teachers and students.	1.7	34
Use of ICT in classroom manages learning	1.5	30
Use of ICT in classroom extends beyond the lesson	2.3	46
Use of ICT in classroom manages time and pace well	1	20
Use of ICT in classroom helps teachers implementing in class activities	3.2	64
Use of ICT in classroom provides staff with personal access to ICT	2.5	50
Overall mean	**3.46**	

Table 3.1: Results of Perceptions about integrating ICT

In relation to analysis of interview findings, when the participants' teachers were asked about their perceptions regarding ICT adoption in classroom teaching learning process, the three interviewee teachers affirmed their positive perceptions. In teachers' interview, the interviewee participants were asked about their perceptions of ICT implementation in instruction to deeply examine the matters they stated in these responses. They maintained that they considered the potential of gaining ICT skills.

Corresponding to the survey analysis, one common theme that the interviewees referred to was the use of technology would improve quality of teaching and learning in classroom environment. One interviewee expressed that teachers had upbeat perceptions towards integrating ICT in their teaching as they know how to access knowledge via technology and how to employ technology in teaching settings. One exception was for one teacher. She showed negative perceptions and considered the use of computers in teaching as "*time killers*" and "*uninteresting and ineffective for educational purposes*".

She claimed the utilization of computers was a waste of time and ineffective for teaching, because it cannot maintain the advantages that traditional settings and teachers can maintain. Another essential theme coming out through the interview was related benefits of implementation of ICT into teacher instruction. It was mentioned that by exploiting a diversity of materials, techniques and instruments in courses, instructors can improve performance in their teaching, and they could also gain from ICT to enhance the quality of teaching more professionally. The two interviewees stated these benefits and perceived that ICT adoption in education would be helpful and effective for instructors. One teacher summed up these beliefs by confirming:

> "Implementation of ICT can enhance the quality and facilitate the process of educators' teaching in their classes. They can be better experts by gaining from the facilities of technology".

The interviewee teachers mentioned that instructors should prop up their students with ICT competencies and ICT literacy. One interviewee teacher mentioned these basic competencies as:

> "Instructors need to be knowledgeable about how to use technology efficiently. As well, they need know how to use computer and Internet, and they need to be trained how to search information online, how to exploit e-mails, and create web sites".

The last concern that one participant teacher focused on the significance of adopting technology not only at the issue level, but somewhat as an institutional approach. She also stated the effect of practice as a prop for abstract knowledge for an ICT implementation process. She mentioned:

> "ICT implementation process should be taken into account in a more framework and contextual based approach and not only a content-based approach. I think that hypothetical data of this process should be propped by school experiences".

In terms of technology use for teachers, two participants believed that technology supported them in their course preparation as it was suitable, efficient and time gaining. Participants concurred that online materials developed their language courses in an interactive and communicative context. The three interviewee participants declared that technology offered those channels of communication with students. These following comments reveal their opinions:

> Exploring a research engine as Google is supportive for instructors to develop in-class activities and materials. These days, instructors can design lesson materials by taking a seat in front of a computer without leaving their offices or going to the library. It's time, energy and money saving.

> There are lots of reliable online resources and language institutions tutorial websites (such as the British Council) that provide a great compilation of exercises for students at varied levels. Instructors can employ materials from this website to enrich their lessons and performance. It's efficient and suitable for instructors to arrange materials, particularly for a large class with different students need.

Participants also revealed positive opinions about employing online materials since they could raise the efficiency of language instruction; multimedia features like video, audio and interactive content can attract students' attention and may enhance their learning motivation and engagement. Utilizing technology-enhanced materials was considered as attractive for students. In this respect, one teacher noted:

> It would be more exciting for students to study the language from both visual and audio inputs. Imagine the differences between giving them chapters of a story to read and displaying a movie or animated voice-over of the same story. Today's' students are always fascinated by multimedia information.

> E-mail is the major means of teacher student communication. It is the most convenient way to keep in touch. I frequently post them assignment and feedback. It is very practical and economical for us to correspond as students can send their tasks from their home.

Participants' standpoints highlighted in this part show that instructors recognized the effectiveness of technology in terms of improving their language teaching. There were aspects of computers and internet that afford a broad range of language material, interactive language performances, electronic text design, multimedia resources and devices for personal communication. Participating instructors admit that these multimodal and communicative traits of computer and internet technology aid them enhance and support effective teaching.

Regarding benefits of technology for students, in contrast with participants' responses in the questionnaire, participating teachers in the interview acknowledge that employing technology in education would give students more learning opportunities and experiences such as getting authentic language input and supporting autonomous learning. The following statements are examples of their perspectives:

> There are ample of authentic language materials in the internet. Students can look for almost any sort of data that they need to learn on the internet by themselves. I believe this would someway recompense students for the absence of real life experiences and genuine communication.

> The benefits of technology up on language learning are countless. Language instructors should teach and guide students in learning language via online materials. This generation of students are thought effectively when it comes to technology. They even know better about novel web devices than their instructors.

Moreover, the respondents noticed that technology had the potential to provide students with more language learning experiences. They considered that students can perform better when technology is implemented into language learning context. Technology also supported autonomous language learning and proficiencies that are critical for students, as these comments imply:

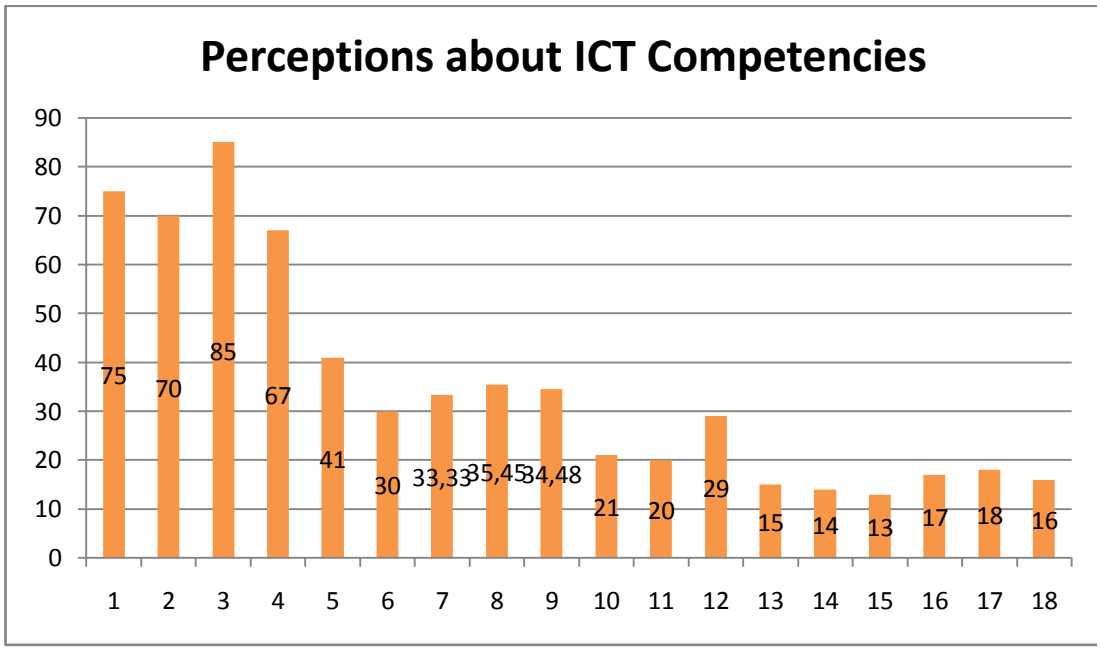
> Integrating technology into language learning would certainly assist students in their upcoming careers. Diverse genre of toil entails people who know how to send an e-mail, search data online, or design online

> websites. Something that cannot be provided in traditional EFL classrooms.
>
> Online language usage gives students the ability to learn at their pace. They can learn materials based on their needs and interests. They do not have to learn the same resource or await the entire class to finish. This is a helpful way for students to improve personalized learning which can be relevant as a fostering means in any kind of education.

Contributing teachers seemed to identify the effectiveness of technology for students and their learning as it provides more learning opportunities and materials. This understanding of prospective value has been stated by investigators as a key affecting factor for technology integration in classroom instruction (Becker, 2000; Lam, 2000, Rogers 1995). For instructors in this study, there was an apparent evidence of the determined effectiveness and prospective of technology in supporting language teaching and students' learning, which would in turn affect their potential technology related standpoints, though they did not corroborate their actual practice of technology in classrooms at this phase.

3.4.1.2 Teachers' Competencies :Findings Related to Question 2

The second issue in this research is the perceived ICT competencies of the teachers. Identified ICT competencies were analysed using the ICT competency subscale in the questionnaire and interview. The competencies involve basic concepts, expertise and proficiencies on fundamental ICT skills, and advanced ICT competencies. Participants ranked their levels of covenant with the items by using a five-point Likert-type scale (5 indicating "Completely Sufficient", 4 indicating "Sufficient", 3 indicating "Neutral", 2 indicating "insufficient", and 1 indicating "Completely Insufficient"). Results are presented in the bar-graph 3.2 in the following page.



1.Using the Internet - World Wide Web (WWW)

2.Searching information online

3.Sending and receiving e-mail.

4.Using word processors for personal and instructional purposes

5.Creating a multimedia presentation

6.Sharing innovative practice

7.Supporting investigative and collaborative learning by students

8.Using presentation software for personal and institutional purposes

9.Using multimedia tool to support instruction

10.Evaluation creating and sharing online learning resources with colleagues and students locally and globally

11.Collaborating online with students from other classes

12.Explore , understand and utilize ICT in teaching and communication

13.Creating a personal webpage

14.Using forums

15.Using video conference programs

16.Establishing local and global learning communities

17.Developing student online learning spaces

Bar-graph 3.2 percentages of the selected perceived ICT competencies according to the participants EFL teachers

Means and total percentages of teachers who rated their ICT competencies being “sufficient” or “completely sufficient” are presented in table 3.3. The results

point out that a majority of the participants perceive themselves as "completely sufficient in basic ICT competencies and they are "neutral" and "insufficient" in advanced ICT competencies.

The results show that most of the participants did not consider themselves as proficient (M=2) in general, and they were insufficient at the level of ICT advanced competencies. The majority of participant teachers perceive their highest competency levels "receiving and sending e-mail" (M=4.25) "using the Internet" (M=3.75); "searching information online" (M=3.5); "using word processors" (M=3.35); "creating a multimedia presentation" (M=2.05) and "using presentation software for personal and institutional purposes" (M=1.77) as "completely sufficient". Participants also perceive little competency levels "using multimedia tool to support instruction" (M=1.72), exploring, understanding and utilizing ICT in teaching (M=1.45), collaborating online with students from other classes (M=1).

Respondents on the other hand, divulged less importance as far as developing students learning via the use of ICT for evaluating students learning (M=1.05), creating and sharing online learning resources with colleagues and students locally and globally (M=1.05); "establishing local and global learning communities" (M=0.9),"sharing innovative practice" (M=1.5) , "supporting investigative and collaborative learning by students"(M=1.66), "using video conference programs" (M=0.85),"developing student online learning spaces" (M=0.8), "creating a personal webpage" (M=0.75),creating blog (M=0.7), and using forums (M=0.65). Results are presented in table 3.2 in the following page.

Teachers' Perceived Competencies	***M***	***%***
Using the Internet - World Wide Web (WWW	3.75	75
Searching information online	3.5	70
Sending and receiving e-mail.	4.25	85
Using word processors for personal and instructional purposes	3.35	67
Creating a multimedia presentation	2.05	41
Sharing innovative practice	1.5	30
Supporting investigative and collaborative learning	1.66	33.33
Using presentation software for different purposes	1.77	35.45
Using multimedia tool to support instruction	1.72	34.48
Evaluation creating and sharing online learning resources locally and globally	1.05	21
Collaborating online with students from other classes	1	20
Explore , understand and utilize ICT in teaching and communication	1.45	29
Creating a personal webpage	0.75	15
Creating a blog	0.7	14
Using forums	0.65	13
Using video conference programs	0.85	17
Establishing local and global learning communities	0.9	18
Developing student online learning spaces	0.8	16
Overall mean	**1.67**	

Table 3.2: Results of the Perceived ICT Competencies.

The foremost perceptions or behaviours about integrating technology in teaching seem to support teachers' teaching tasks ignoring students' exploratory and collaborative language learning activities. They considered and exploited technology applications to support lecturer- led instruction and students' assigned tasks and practices. Though their use and perspectives about technology were mainly associated with low level use of technology in language learning and teaching, these findings may be inclined to reveal the actual situation of technology use and beliefs of these EFL teachers along with their working conditions. As Levin and Wadmany (2006) point out, there is rapport between teachers' academic beliefs and their academic practices as formed by organizational variables comprising the curriculum, students and co-workers.

Though participants perceived competencies at the level of ICT basic concept, it was divulged that there was a low use of technology that is used to raise interaction amongst students and "to evaluate, create and share online learning

resources", facts which indicate low level of advance (communicative) competence. Only little number of participants reported that they used ICT "to support investigative and collaborative learning by students"; to "share innovative practice" and to "explore, understand and utilize ICT in teaching and communication".

The findings gave some evidence that there are positive perspectives about the assimilation of ICT in the teaching learning process. In line with Sugar (2002), positive perceptions of instructors regarding ICT assimilation in the classroom is the main essential engagement. By working on instructors' perceptions toward the use of ICT education, they could potentially take away various barriers to successful ICT assimilation. From the findings of this study it could be denoted that instructors believed that the use of ICT would offer lots of benefits to the teaching learning process. Open-ended responses and interview findings indicated that EFL teachers have positive perspectives. These can be classified under three major topics as: (1) the ability to integrate ICT in today's classroom, (2) benefits of ICT for students, and (3) benefits of ICT for teachers.

The first point the participants highlighted was the effect of ICT integration on their classroom instruction. They considered that ICT integration has the potential to improve the teaching quality by improving teaching competence and effectiveness. The majority of participants stated that ICT can enhance the teaching process by supporting instruction and providing effective and innovative strategies and materials .Besides, they claimed that ICT can make teaching more agreeable and boost motivation for the content of the course. They as well indicated that ICT can provide students and teachers with access to a diversity of ICT options.

The second point the participants pointed out was about the benefits of ICT for students. Throughout their responses, participant teachers seem to be more inclined to use ICT for enriching instruction process rather than supporting students learning. The only advantages they mentioned, with the lowest percentages were about using video conference programs; developing student online learning spaces and setting up local and global learning communities. High

level applications of technology (creating a webpage, forums, blogs, use of video conference, and setting up global learning communities) which require students' critical thinking and collaboration were often less explored by these participants. In spite of their potential communicative and interactive aspects, computer and internet technologies were hardly ever utilized to endorse students' learning skills.

The main cause behind this relies on the conception that some teachers do not want to leave "the comfort zone" and tend to use ICTs which suit their knowledge and competencies ; and to enhance their instruction first, then they opted for integrating ICT as it would aid students concretize abstract notions and develop knowledge continuity.

The last point the participants pointed out was about the benefits of ICT for instructors. The primary matter that they cited was staying beside the pace of nowadays' world and convalescing personal skills. They considered ICT can support instructors in this process by improving teaching proficiencies. They also considered ICT can shore up instructors be extremely motivated in their courses parallel to their students' boosted motivation. Throughout the teaching process, ICT can help out lecturers to have enhanced time management skills. Because integrating diverse learning resources into a classroom setting is a difficult process for lecturers, ICT can allow them to attain more authentic learning resources by propping audio-visual features jointly, integrating multiple senses into learning, and enriching real-world experiences.

In this concern, Ertmer (2005) evokes that it is essential to investigate what precisely is affecting instructors' technology beliefs and behaviours. These findings about technology use and perspectives also mirror the existing difficulties of technology integration, mainly in individual instructor teaching contexts. At this phase, the best clearing up to give is that these instructors believed technology that they by now identified used and felt comfy with. Therefore, they stated upbeat views about a given technology that had realised effective in their classroom instruction and students' learning. These findings will be put together with

qualitative data from interviews to provide a reflective understanding about the diverse contextual aspects in teaching.

The findings from interviews reveal that teachers conceive themselves competent in word processing and MS PowerPoint practice. Then again, all of them want to improve their knowledge and proficiencies in employing MS Excel and the video conferencing.

The interviewee teachers claimed that they acquired the skills in diversity of ways and from two main bases: Computer course and on their own. All of them are experienced in Word processing program and know how to exploit the Internet and as well all of them would like to know Excel. The two teachers interviewed had negative perspectives about some teachers' expertise and proficiency in technology. An interviewee teacher said:

> "Most of the teachers cannot use ICT in their teaching. They do not have sufficient competence and expertise in technology. Some of them cannot utilize a projector in classroom. I think, today's teachers ought to be trained to make use of technology. Such as, they can take an in-service training as "Computer course".

A second teacher maintained that she felt like to exploit the Internet efficiently in her courses and everyday life. She stated, "When I make research on the Internet, I come across plenty of things. Hence, I spend much time online". Another finding was linked with typing pace by employing the computer keyboard. She stated that she wants to be able to type quickly with ten fingers.

The most frequently reported use of ICT for instruction comprised preparation for lectures, teaching learning materials and assessments as signalled by the extract below from research participants:

> I use ICT in my classroom instruction for several targets for example searching teaching and learning resources, planning a lesson notes, and instructing it as a subject. It also assists during preparation of lectures, preparation of exams.

Such phase of ICT use does not allow instructors to totally alter their teaching practices. There is a must to exceed such plain use by engaging students in the use of ICT so as to change students' learning. Some instructors exploited ICT to work out instant issues about teaching and learning they had come across throughout the course of instruction as the following passage shows:

> As a teacher, sometimes, I get difficult questions from students, what I do is that I just visit Google webpage and get good, sufficient and adequate answers.

This type of method of searching further information appears to be wanted as it supports teachers' enduring learning. Therefore, the need to learn further is induced by the current situations, compelling instructors to leave their comfort zone. Ecclestone (2004) indicates that unchallenged instructors are inclined to stay in their comfort zone.

The use of ICT assisted instructors simplify their instruction process, manage their time and enhance teaching-learning undertakings as pointed out in the following excerpts from the two interviewee teachers:

"It helps out to simplify the teaching process and help out in time management".

"It aids to access data linked to teaching, to afford different tasks".

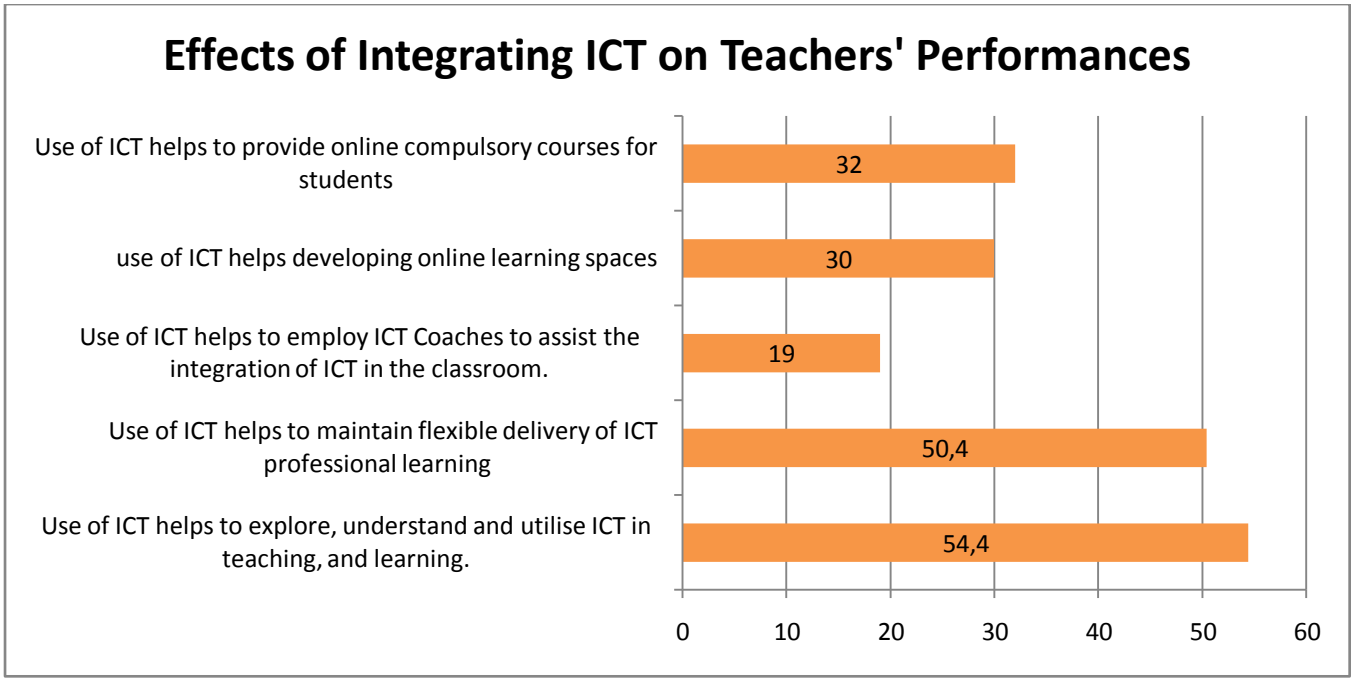
Though, to some instructors it was a trouble as one of them points up:

"It pushes the students to focus more on computers without listening. It is time consuming".

Such a practice shows instructors' lack of pedagogical proficiencies in dealing with issues related to the usage of ICT in the classroom. Basically, it is a matter of grabbing students' attention. What is worth to mention is that students appear to be engaged to employ the technology; hence, it is the instructor's role to make sure that focus is either put on the technology or on the instructor at a particular time in the classroom.

3.4.1.3 Effect on Teachers' Performance: Findings Related to Question 3

This study attempts to probe the incentives of EFL teachers behind integrating ICT. The data were gathered from EFL teachers working in three high education institutions. The data were collected from them with five-point Likert-type scales and interviews. For the Likert type scales, informants rated their level of agreement on the five-point scale (5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree"). The means and percentages of the quantitative scales for respondents' answers are detailed in bar-graph 3.3 bellow.



Bar-graph 3.3: Percentages of the selected perceived ICT competencies according to the participants EFL teachers

It is perceived the participant teachers have positive standpoints as far as incentives behind the use of ICT in teaching learning process. They divulged that the integration of ICTs would help students to explore, understand and utilize ICT in teaching and learning (M=2.72). The informants' teachers concurred also that the integration of ICTs would be favourable to maintain flexible delivery of ICT professional learning through face-to-face and online activities (M=2.52), to

provide online compulsory courses required for their learning (M=1.6), to develop online personal learning spaces (M=1.5) and to employ ICT Coaches to assist the integration of ICT in the classroom (M=0.95). This is presented in the table bellow.

Benefits on Teachers' Performance	***M***	***%***
Use of ICT helps to explore, understand and utilise ICT in teaching, and learning.	2.72	54.4
Use of ICT helps to maintain flexible delivery of ICT professional learning	2.52	50.4
Use of ICT helps to employ ICT Coaches to assist the integration of ICT.	0.95	19
Use of ICT helps to develop online learning spaces.	1.5	30
Use of ICT helps to provide online compulsory courses for students.	1.6	32
Overall mean	**1.85**	

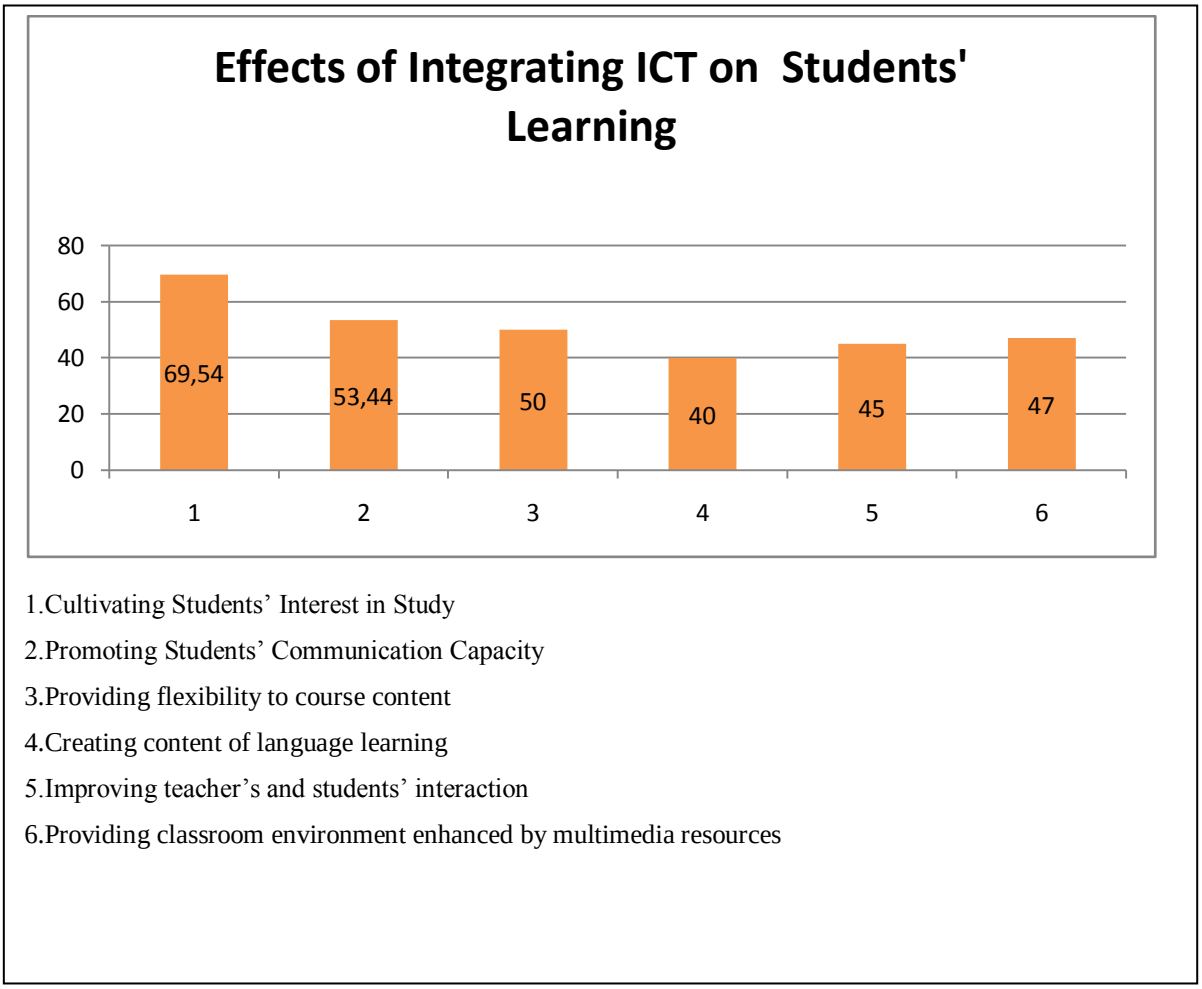
Table 3.3: Results of Integrating ICT on Teachers' Performance

Because ICT is not a magic potion for all educational troubles, today's technologies are crucial implements for teaching and learning. To deploy these implements efficiently and proficiently, educators need to have clear perceptions of the technologies' aptitudes, opportunities to integrate them, training and just-over time prop, and time to experiment. Only then can educators be prepared and self-confident in their deployment of new technologies (Bowes, 2003).

3.4.2. Waves of Change: Effect of integrating ICT

3.4.2.1 Effect on Students' Learning: Findings Related to Question 4

In the fourth question of teachers' questionnaire, participants were asked how effective for the learning process would be the integration of ICT in learning and teaching process. The data were collected with a five point Likert-type scale (5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree"). The results are presented in the subsequent bar-graph.



graph 3.4: Percentages of the Selected Statements about the Effect of Integrating ICT on Students Learning

While scrutinizing their responses regarding the effect of integrating ICT, informants teachers claimed that integrating ICT in English language learning is supposed to cultivate students' interest in study (M=3.47). They agreed that the use of ICT would promote students' communication capacity (M=2.67). Actually, that could be realized throughout the use of some means such as films, videos, audios or songs in order to improve the teaching of English conversation skills to develop students' communicative competence. Respondents also agreed that computer-based lessons tend to be more enjoyable and effective than traditional lessons as it provides flexibility to course content (M=2.5).

Besides, the questionnaire displays that the use of ICT can be useful to improve interaction between teachers and students (M=2.25) and to create content for language learning (M=2). In fact, such answers reflect the fact that the implementation of ICTs could be really effective. Informants teachers (M=2.35) supported a classroom environment enhanced by multimedia resources where they would be exposed to authentic language and learn from the native speakers. Results are put forward in table 3.4 bellow.

Advantages on Students' Learning	***M***	***%***
Cultivating Students' Interest in Study	3.47	69.54
Promoting Students' Communication Capacity	2.67	53.44
Providing flexibility to course content	2.5	50
Creating content of language learning	2	40
Improving teacher's and students' interaction	2.25	45
Providing classroom environment enhanced by multimedia resources	2.35	47
Overall mean	**2.54**	

Table 3.4: Results of Integrating ICT on Students Learning

This would be an adequate method of teaching which could be adapted according to students' needs and interest. In this concern, an interviewee teacher said:

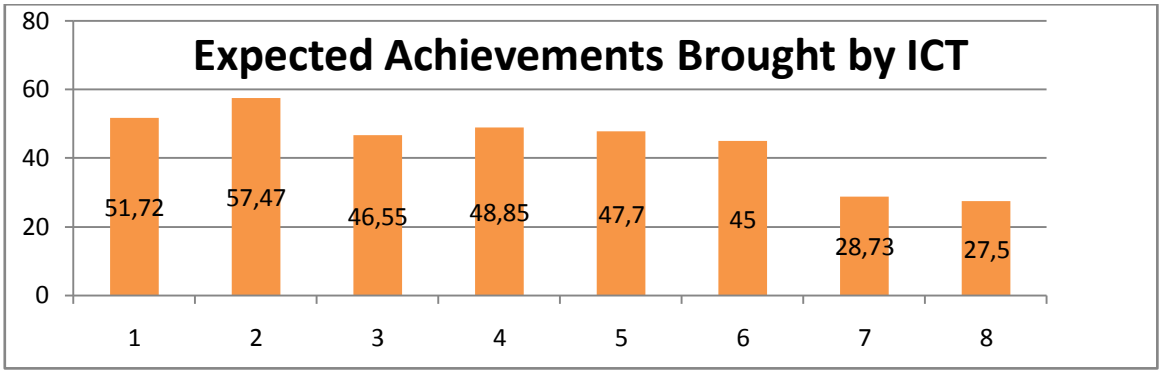
> The deployment of ICTs could enable EFL students to monitor their learning on their own by boosting their engagement to learn. It improves access to tasks and language instruments wherever, and at whenever they equipped.

With respect to the above statements, one can claim that ICT has been shown to be an efficient device for the teaching of English since this latter is an unbolt access or a means for getting native speakers into a classroom environment. ICT instruments afford real life situations and authentic conversations for students. Also, ICT approaches flourish good opportunities for EFL students to exercise their self-sufficiency. In agreement with this, with the use of ICT teachers allow for students' needs, interests and goals while planning and selecting tasks.

Once concurred upon the lessons' design, the students would be capable of accessing the content and practising what has been taught and even evaluating their learning outcomes on their own with the aid of the guiding Software. The teacher is just a tutor or rather an adviser for the learning process. On the shade of the 21st century challenges and demands, the Algerian University seems approving for what is needed from both tutors and even the decision makers. The Algerian University has shown to have the essential expertises and pedagogical resources to provide an exceptional quality of EFL instruction.

3.4.2.2 Expected Benefits: Findings Related to Question 5

The fifth question was intended to measure teachers' perceptions about the benefits that ICTs have brought to improve the teaching and learning process. The data were collected with a five point Likert-type scale (5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree"). The means and percentages are presented in the bar-graph3.5 in the following page.



1.Facilitating communication through the social media and social networking

2.Introducing new method of learning called E-learning

3.Exposing teachers to modern world by searching, reading and connecting with people

4.Providing easy and quick access to information stored up in the computers.

5.Improving quality of teaching

6.Enabling teachers to update teaching-learning materials

7.Decreasing burden of keeping hardcopy

8.Allowing teachers to enrol the students online

Bar-graph 3.5 Percentages of the Selected Statements about the Expected Achievements Brought by ICT

The findings of this study indicate that participants agreed that ICT is crucial in teaching learning process and identified a number of the novelties brought by ICT in teaching-learning process which embrace the following:

More than the half of respondents (M=2.58) concurred that the use of ICT has facilitated communication through the social media and social networking; since the integration of ICT has the potential communication easy through the internet e.g. E-mail, chatting, Skype, teleconferencing, video conferencing, etc.

Participants teachers (M= 2.57) agreed that ICT has introduced new method of learning called E-learning (Electronic learning) which enables students to have access to study with foreign universities. This allows students to share knowledge and experience with students and teachers all over the world.

Informants teachers (M= 2.44) believed that the use of ICT has provided easy and quick access to information which are stored up in the computers. This saves teachers' time compare to system of files which is takes more time.

Respondents also reported that integrating ICT has improved quality of teaching as some the teachers use software and management data systems to prepare lessons and give instruction (M=2.38).

Participants teachers indicated that ICT integration exposed teachers to modern world by searching, reading and connecting with resourceful people all over the world with the aid of the internet (M=2.32).

Respondents indicated that integrating ICT has helped teachers to update teaching-learning materials through reading and learning further about the most updated resources to enhance their instruction (M=2.25).

Informants teachers stated that ICT has decreased burden of keeping hardcopy as overall data or files are kept in soft shape (M=1.43).

Analysis of statistics revealed that respondents pointed out ICT has made it possible for teachers to enrol the students online (M=1.37). It has also allowed

students to access their notes online. Table 3.5 in the next page presents the results.

Major Benefits	***M***	***%***
Facilitating communication through the social media and social networking.	2.58	51.72
Introducing new method of learning called E-learning	2.57	57.47
Exposing teachers to modern world by searching, reading and connecting with people	2.32	46.55
Providing easy and quick access to information stored up in the computers.	2.44	48.85
Improving quality of teaching	2.38	47.70
Enabling teachers to update teaching-learning materials.	2.25	45
Decreasing burden of keeping hardcopy	1.43	28.73
Allowing teachers to enrol the students online.	1.37	27.5
Overall mean	**2.29**	

Table 3.5: Results of the Expected Benefits Brought by ICT

In relation to the results of previous researches brought by related studies (Askar and Umay 2001 & Brush et al. ,2003) &Erkan ,20ds04 & Çelik and Bindak ,2005), Deniz (2005) the findings of this study revealed that English language teachers in the three Algerian universities have overall positive perceptions about ICT integration EFL instruction.

Teachers interview attempts as well to highlight their perception of the innovations brought by ICT in the EFL teaching learning process. Respondents' answers were positive in general as illustrated below:

- *A lot of students search materials through the internet therefore it heartens the spirit of innovation.*
- *It helps students to search information by themselves hence become autonomous students who are supposed to be responsible for their learning*.
- *It helps the students to understand better and broaden the sphere of their knowledge about a given subject thanks to the diversity of resources provided on the net.*

The usage of diversity of teaching-learning materials has the potential of making students comprehend the subject matter easier since they get different perceptions; though, appropriate usage of such materials is what brings the impact. For example, tasks are likely to be more successful once they are understandable, instructor guided and students have the essential technical proficiencies, or else

students are likely to embark on searching for insignificant data. On technical issues, one of the lecturers explains the idea; hence:

Microsoft word is always the problem, since some students do not manage the speed on the keyboard, mouse use.

Technical skills are critical for complete use of ICT. A research shows that such skills stem from expertise and continuous deployment of ICT (Cavas *et al.* 2009; Steel 2009; Mwalongo 2010). Though, some studies show that expertise alone is not a forerunner for integrating ICT in the teaching-learning process (Alexander *et al.* 2010), but attitudes towards the integration of ICT (Cavas *et al.* 2009) and the worth of ICT (von Konsky *et al.* 2009; Dogan 2010; Moore & Iida 2010; Ottenbreit-Leftwich *et al.* 2010). ICT facilitated students' comprehension of diverse abstract notions and made them more active and concrete as demonstrated below.

The use of teaching media, helps clearing up the abstract concepts, and boosts students' engagement and motivation in learning (said an interviewee teacher).

Though, the use of ICT was as well a source of distraction as the following extract shows:

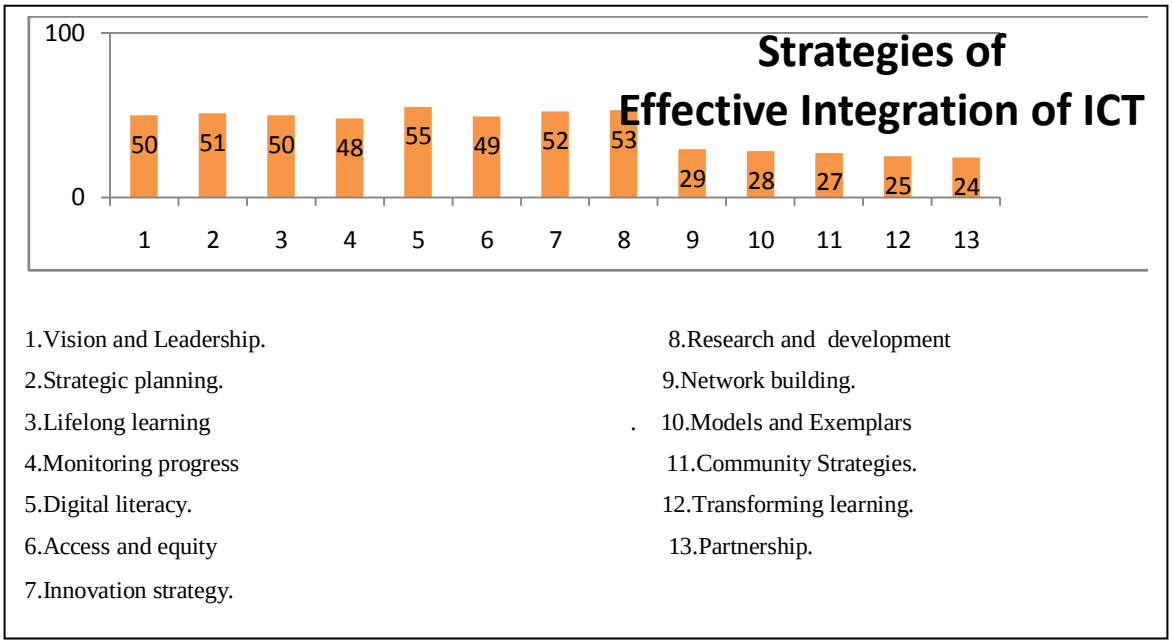
Sometimes students can be taken away by non-related matters such as searching news of artistes (said another interviewee teacher).

It is worth to mention that ICT cannot make the teaching or learning process come about; it is how ICT are utilized that makes the distinction. So, such difficulties, among other issues, can be solved if the courses are well prepared, designed and piloted.

3.4.2.3 Strategies of Integration: Findings Related to Question 6

The question number six in teachers' questionnaire attempts to spotlight teachers' perceptions of the strategies to effective integration of ICT. Informants teachers were asked to indicate what they perceive as strategies that that enable

teachers to sufficiently integrate ICT in classroom instruction. The data were collected with a five point Likert-type scale (5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree". The results are shown in the bar-graph bellow.



Bar-graph 3.6: Percentages of the Selected Statements about the Perceived Strategies for Effective Integration of ICT

When asked about the strategies that need to be considered for effective integration of ICT, the findings show that participants agreed with the points: digital literacy (M=2.75), research and development (M=2.65), innovation strategy (M=2.6) strategic planning (M=2.55), vision and leadership (M=2.5), lifelong learning (M=2.5), access and equity (M=2.45), monitoring progress (M=2.4) as prospective strategies through which they would be able to integrate ICT in classroom instruction.

On the other hand, network building (M=1.45), models and exemplars (M=1.4), community strategies (M=1.35), transforming learning (M=1.25), partnership (M=1.2) were at the undecided (neutral) level. This is presented in table 3.6 in the next page.

Perceived Strategies	**M**	**%**
Vision and Leadership.	2.5	50
Strategic planning.	2.55	51
Lifelong learning	2.5	50
Monitoring progress	2.4	48
Digital literacy.	2.75	55
Access and equity.	2.45	49
Innovation strategy.	2.6	52
Research and development.	2.65	53
Network building.	1.45	29
Models and Exemplars.	1.4	28
Community Strategies.	1.35	27
Transforming learning.	1.25	25
Partnership.	1.2	24
Overall mean	**2.08**	

Table 3. 6: Results of the Perceived Strategies to Effective Integration of ICT

Further to this, analyses of qualitative responses point out that there are common points between the questionnaire and interview results for strategies of integrating ICT. The interviewee teachers indicated that it is pivotal to determine the intended upshot of certain strategy. One interviewee explained this by saying:

> I think, if we want to maintain an effective use of ICT and develop thinking and lifelong learning we need to understand the notion of vision and leadership in order to meet the anticipations and the needs of today's education.

Another participant stated:

> I believe that innovation strategies should be developed to implement ICT into learning in a process that transforms learning into more interactive and engaging contexts for students and teachers.

From the need to have practical data updating policy decisions; to the development of skills for teachers and students, the integration of ICT is inevitable if the education system is to thrive. The integration of ICT will necessitate an

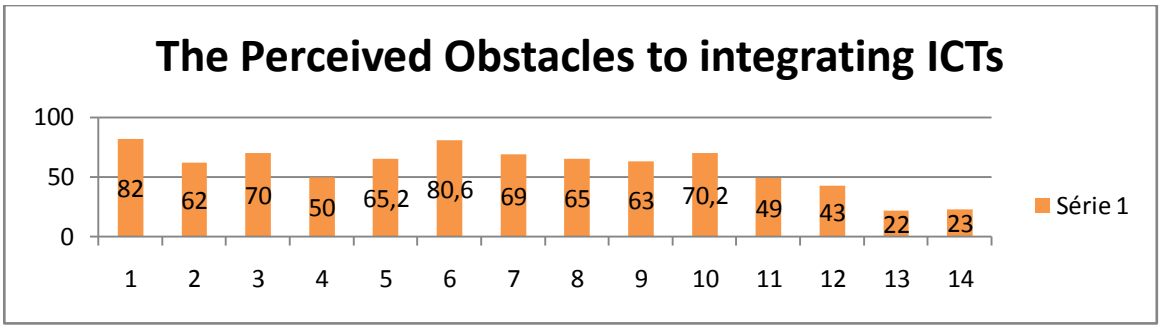
increase in financial support for the materials essential to achieve the objectives of these programmes. In addition, time, organization support, commitment, cooperation, and flexibility are necessary to ensure effective integration and adoption of technology. Besides, the supplying of technical support is vital to effective integration of ICT plans.

ICT resources have a limited lifetime due to wireless and technological breakdowns. Flexible, open and upgradeable structural designs are favourable, because of the fast developing feature of the technology. Consequently, ICT resources would best be set up according to arranged nationwide and local standards to guarantee best connectivity. Moreover, successful monitoring of ICT integration and maintenance will promote continuity. Standard, planned maintenance certifies the potency of ICT resources; and practical and consistent ICT resources are a major factor in the reliability and stability of ICT programs.

3.4.3 Challenges, Measures of Endorsement and Enablers

3.4.3.1 Challenges for integrating ICT: Findings Related to Question 7

The seventh question in this research was intended to identify the perceived obstacles and challenges to integrating ICTs in instruction. Respondents were inquired to determine the extent to which they consider possible challenges and obstacles that may preclude them from using ICTs in their classroom instruction. The data was collected from them with five-point Likert-type scales and interviews. For the Likert type scales, informants rated their level of contract on the five-point scale (5 indicating “Strongly Agree”, 4 indicating “Agree”, 3 indicating “Neutral”, 2 indicating “Disagree”, and 1 indicating “Strongly Disagree”). The results of participants’ responses to every potential obstacle or challenge are presented in bar-graph3.7 in the following page.



1.Lack of in-service training
2.lack of access to ICT equipment
3.Long standing pedagogical practices.
4.No perception of benefits.
5.Technical problems
6.Lack of technical Support.
7.Lack of professional development on how to integrate technology
8.Lack of teacher confidence
9.Teachers' computer anxiety.
10.Lack of teacher ICT competencies.
11.Resistance to change & negative attitudes
12.Impact of public examinations.
13.Teacher workload.
14. Lack of time during a class period

Bar-graph 3.7: Percentages of the Selected Statements about the Perceived Obstacles to integrating ICTs

The results revealed that majority of the participants teachers agreed with the all statements as barriers "lack of in-service training" (M=4.1),"lack of technical support" (M=4.04), "lack of ICT competencies" (M=3.51), "long standing pedagogical practices" (M=3.5), "lack of professional development on how to integrate technology" (M=3.45), "technical problems" (M=3.28),"lack of teacher confidence"(M=3.25),"teachers' computer anxiety" (M=3.15), impact of public examinations" (M=2.15), "lack of access to ICT equipment" (M=3.1), "no perception of benefits" (M=2.5) and " resistance to change & negative attitudes" (M= 2.45) except for the statements "teacher workload" and "lack of time during a class period" about which they were undecided (neutral) as presented in the table 3.7 in the following page.

Perceived Obstacles	***M***	***%***
Lack of in-service training	4.1	82
lack of access to ICT equipment	3.1	62
Long standing pedagogical practices.	3.5	70
No perception of benefits.	2.5	50
Technical problems	3.28	65.2
Lack of technical Support.	4.04	80.6
Lack of professional development on how to integrate technology.	3.45	69
Lack of teacher confidence	3.25	65
Teachers' computer anxiety.	3.15	63
Lack of teacher ICT competencies.	3.51	70.2
Resistance to change & negative attitudes.	2.45	49
Impact of public examinations.	2.15	43
Teacher workload.	1.1	22
Lack of time during a class period	1.15	23
Overall mean	**3.23**	

Table 3.7: Results of the Perceived Obstacles to Integrating ICTs

Results of the questionnaire and interview demonstrate "Lack of in-service training about ICT" was the major barrier. Analyses of interview results also pointed out there is a crucial resemblance between the questionnaire and interview results concerning the major barriers for ICT integration in EFL teaching and learning process. On top of these results, the subsequent barriers from interviews divulged two central points as:

(1) What they do not have:

- ✓ short term in-service training,
- ✓ shortage of a milieu (portal) which can be exploited as communication platform for teachers and IT specialist,
- ✓ absence of technology plans for integrating ICT,
- ✓ lack of norms which place emphasis on delineating the proficiencies and perceptions of teachers for implementing ICT.

(2) What they have:

- ✓ packed out classrooms,
- ✓ burdened curriculum,
- ✓ impoverished quality of preservice education,
- ✓ impoverished quality of in-service training.

As in the above barriers, one participant noted the impoverished quality of in-service training about ICT integration by reporting:

> "Throughout the in-service training we were only learning some fundamental computers skills rather than how the implement ICT into our curriculum. I believe in-service training should meet the needs of today's' education where ICT is used to revolutionize and improve the quality of teaching and learning".

In this section of analysis, the barriers to integrating ICTs are tackled in depth. It is carved up into sub-sections according to the types of the barriers and the extent to which they are identified by the review of literature and survey questionnaire. The present study tends to analyze the relationships which come out to exist between the barriers, which, in return would make teachers reluctant, fearful and not adept to use ICT in their classroom instruction. Affective factors namely "Lack of teacher confidence" and "teachers' computer anxiety" have tremendous impact of teachers attitudes and engagement to use ICT.

This perception of teachers who experienced panic of ICT is also mentioned by Russell and Bradley (1997), who refer to a '*cyber- phobia*' that some teachers undergo and which can be a real problem for them, and that these anxieties merit serious attention. In the present study it is reported that the main common causes of this ICT anxiety were "Lack of professional development on how to integrate technology" and "Lack of teacher ICT competencies". It is suggested then that strategies to decrease ICT anxiety in teachers should attempt to tackle these issues. Several teachers who do not consider themselves competent in utilizing ICT feel fearful about utilizing it in front of a class of students whose knowledge may surpass that of the teachers. One interviewee teacher states:

"Some teachers are so scared of public humiliation in front of their clued-up students."

"Teachers may lack confidence to use technology because they feel that they are not capable of giving instruction with the use of ICT."

Larner and Timberlake (1995) found that teachers were anxious about showing their students that they were not skillful to use the material, and that it was the teachers who went through this type of concern who were less willing and / or proficient to utilize computers in their instruction. Besides, students' attitudes and beliefs of their teachers' aptitude in ICT tend to create this teacher worry. Guha (2000) affirms that students, who overall experience every day interaction with a broad variety of technology, are more and more putting requests on teachers, anticipating them to be well-read in the point of computer use.

Respondents also indicated that "no perception of benefits" "long standing pedagogical practices" and "resistance to change & negative attitudes" are factors that tend to reduce teachers' use of ICT in classroom may be because they did not consider themselves capable to make the change and to integrate ICT in their classroom instruction. Also, respondents stated that 'technical problems' and ' lack of technical support' are said to be the main reason behind teachers' fear of using ICT and therefore barriers to the use of ICT.

In fact, 'technical problems' and ' lack of technical support' can deeply affect teacher's confidence in trying to utilize that tools, due to the worry of it breaking down during a lesson, or the fear of them breaking down the tools themselves. In fact, the preceding points are related to the level of confidence they have about utilizing ICT as illustrated in the figure 3.1 in the subsequent page.

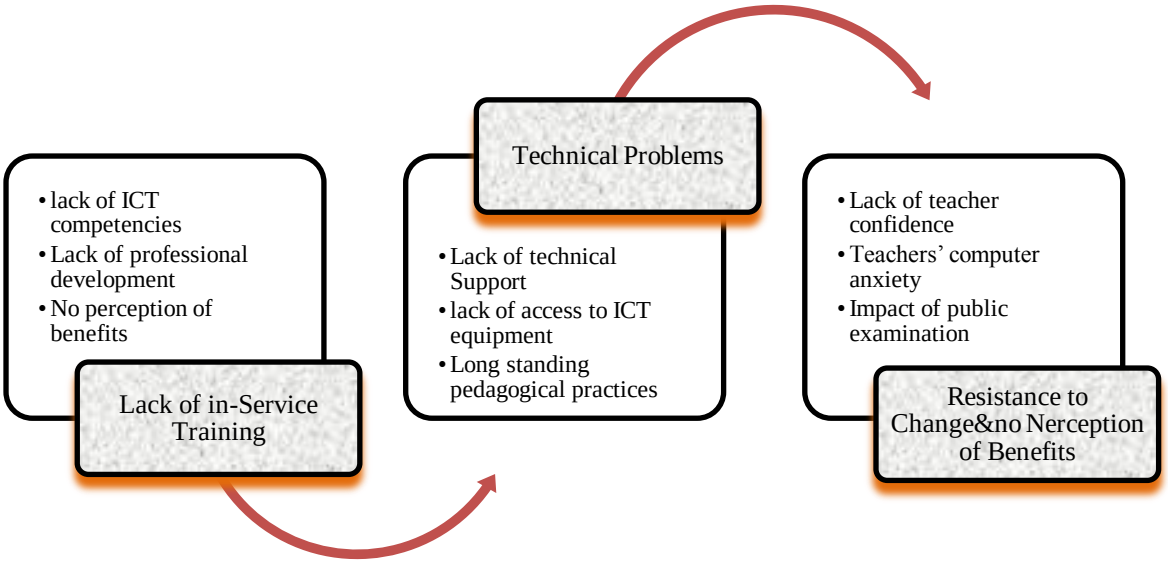


Figure 3.1: Obstacles of integrating ICT

In the figure above, the direction of the arrows signifies the phrase 'can lead to'. Such as, lack of in-Service training can lead to technical problems, which can in order lead to the resistance to change and no perception of Benefits. The twofold headed arrows show that technical problems can be influenced by the three connected barriers, but the lack of confidence for example could in turn have an impact on these three barriers. For instance, teachers with low confidence may have a higher anticipation of technical troubles coming about if they were to utilize ICT, and therefore may keep away from utilizing it. Secondly, a teacher with low ICT confidence may prefer not to be involved in any elective training, maybe because of fear of discomfiture in front of students or peers, and therefore their competence in utilizing ICT will not develop. Thirdly, a teacher with low confidence may keep away from trying to find facilities for individual access to ICT, which would therefore increase the impacts of this barrier.

As well, a number of factors relating to these barriers can be inter-related, and these are indicated by the darker arrows on the diagram. For example, a relationship exists between the "lack of technical support" and "lack of access to ICT equipment". Even when hardware is accessible, if technical support is not right away provided, any technical issues will decrease that access until the issues

are put right. One more relationship represented by the diagram is where the fear of things going wrong could be affected by lack of effective training. With a lack effective training, teachers may go through a higher level of anxiety about expected technical issues, since they would have insufficient knowledge of how to circumvent or work out such issues by themselves.

Training can also be viewed in terms of teachers training themselves, by trying out and becoming more conversant in hardware and software. There is a correlation between this 'self training' and teachers' individual access to ICT. Having restricted individual access will result in a teacher being incapable to spend time exploring the resources on hand, and in order the teacher's confidence in employing ICT may go down.

The present research puts forward that there are complex inter-relations between these two levels, and between the obstacles within those levels. Such as, Ertmer (1999) proposes that teachers fixed levels of significance to first-order barriers which in turn influence their own second-order barriers. Likewise, teachers' perspectives about the significance of ICT can boost or lessen the effect of any practical troubles they may come across. Actually, Ertmer keeps on by proposing that the problem of low adoption of ICT by teachers can only be tackled when the second order barriers are addressed; there is small tip in supplying large amounts of materials if teachers lack the confidence and attitudes essential to change their classroom instructions. A further way of assembling the barriers is to consider whether they are about the individual (teacher level barriers) or about the institution (school level barriers). The barriers classified in this research could hence be assembled as follows:

School level barriers

- Lack of effective training
- Technical issues
- Lack of access to resources (lack of hardware, unsuitable management, poor quality software)

Teacher level barriers

- Lack of confidence
- Resistance to change & negative attitudes
- No perception of benefits
- Lack of access to resources (personal / home access)
- Lack of time

Considering the extent to which these barriers have an effect on individuals and institutions may aid in determining how they are to be addressed. The lack of time has been incorporated in both level barriers, since it can fall under both groups; a teacher's lack of time may be caused by the systems placed by the institution, making it thus a school level barrier, although the lack of time might also be caused by the teacher's own management and choices, which would turn it a teacher level barrier. It is essential, though, to consider that there are complex relations between the barriers at each level, and as well between barriers within each level; it is not useful to only conceive them as existing in completely disconnect bunches.

Though a good amount of literature presenting evidence of the barriers to ICT on the whole, there is small evidence that exists in definite stages of education, or in definite subject areas. So as to address the barriers to the use of ICT, it may be useful to put focus on those barriers that specifically affect practitioners in definite positions. It is hence advocated that further research can investigate the barriers to the uptake of ICT which are specific to teachers, and if possible the particular barriers which are present for all of the subject areas within those areas.

❖ ***Technology specific barriers***

Most of the available literature considers barriers to the adoption of ICT overall. There is small evidence which considers other particular ICT focus on the use of ICT resources and the barriers which impede its extensive adoption. Further research could probe barriers, and enablers, for instance, use of the Internet, Interactive Whiteboards, or digital video. Again, this would allow intended

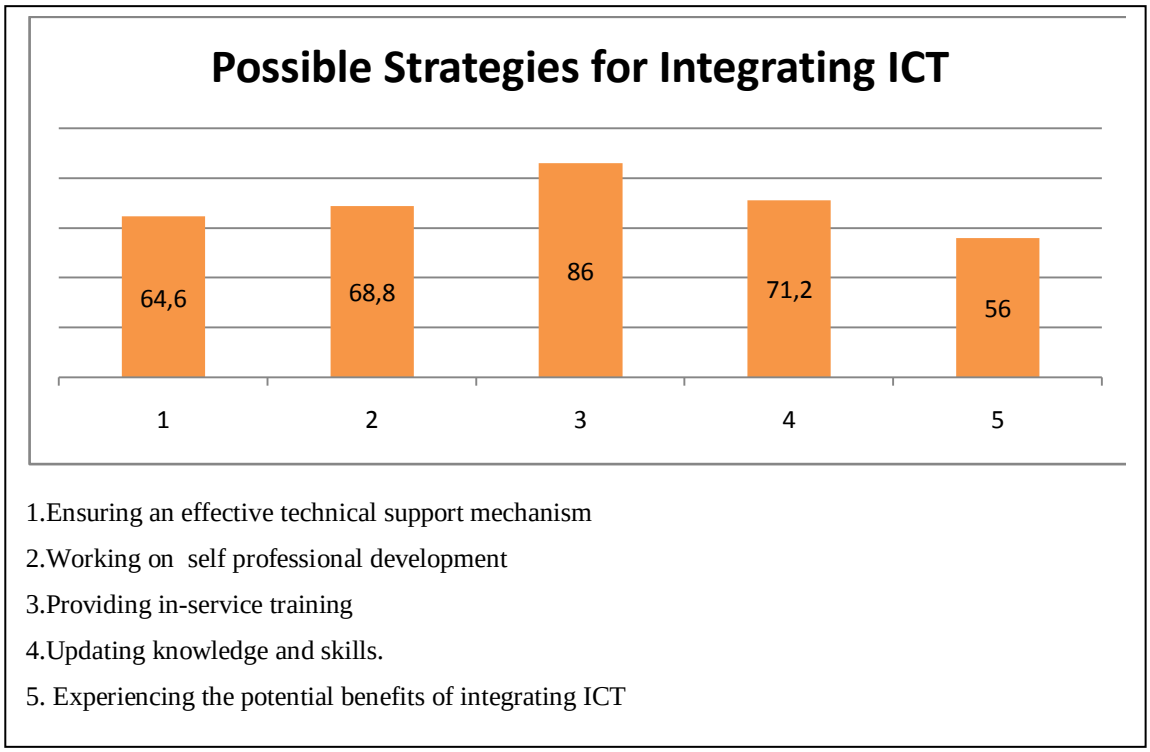
recommendation to enhance integration of each of these technologies in classroom instruction.

These barriers were supported by participant teachers' responses to the questions of the interview. In addition to the barriers stated above, informant teachers also mentioned the following as obstacles: (1) lack of a setting (portal) which can be used as a communication platform for teachers besides IT specialists, (2) lack of technology strategies for integrating ICT in teaching learning process, (3) absence of standards that spotlight the identified skills and attitudes of teachers for implementing ICT into their teaching, (4) packed out classrooms, and (5) burdened curriculum. Teachers' interview findings illustrated: *"need for a appropriate role model for teachers, lack of technology strategies, absence of successful models for STE, crowded classrooms, negative attitudes, and insufficient number of technology integration courses"* are essential barriers, which were not described in the questionnaire. In fact, teachers have to realize what is anticipated of them regarding technology standards. Along with Schoep (2004), and the results of this study, both curriculum standards and technology incorporation are fundamental factors of an effective ICT integration. This was also propped up by teachers' to the interview question wherein they mentioned another essential barrier as being their strong belief of the low quality of in-service training about ICT implementation, as one interviewee indicated " *suitable in-service training is required if ICT is to support institutions perk up both teaching and learning process*". Participant teachers' responses to the fifth research question, which focuses on the perceived obstacles and challenges to integrating ICTs in instruction, highlighted the main reasons and barriers which could create unwillingness to the uptake of ICT. At the same, identifying the main points of this attitude would help teachers and decision makers to solve those problems for effective integration of ICT.

3.4.3.2 Measures of Endorsement: Findings Related to Question 8

In the question number eight, informants were asked about the measures of backing for integrating ICT. Data was collected with a five point Likert-type scale

(5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree") and interviews. The results are presented in the bar-graph bellow.



Bar-graph 3.8: Percentages about the selected statements concerning the possible strategies for integrating ICT

The results demonstrate that the majority of teachers agreed that in-service training should be enhanced in quality and quantity (M=4.30). Participants concurred also that teacher need to experience the potential benefits of integrating ICT (M=3.25). They considered as well that knowledge and skills should be updated and improved (M=3.56) also professional development should be take forward (M=3.44). They also agreed that they ought to experience the potential benefits of integrating ICT (M=3.25) and ensure an effective technical support mechanism (M=3.23).this is illustrated in the table 3.8 in the next page.

Possible Strategies	***M***	***%***
Ensuring an effective technical support mechanism.	3.23	64.6
Working on self professional development	3.44	68.8
Providing in-service training	4.30	86
Updating knowledge and skills.	3.56	71.2
Experiencing the potential benefits of integrating ICT	3.25	56
Overall mean	**3.55**	

Table 3.8: Results of the Possible Strategies for Integrating ICT

On the shade of the changes sweeping the school curriculum, teachers need to update their knowledge and skills. They have to learn to teach with digital technologies, albeit lots of them have not been trained to do so. The target of teacher training in this respect can be either teacher tuition in ICTs or teacher tuition through ICTs.

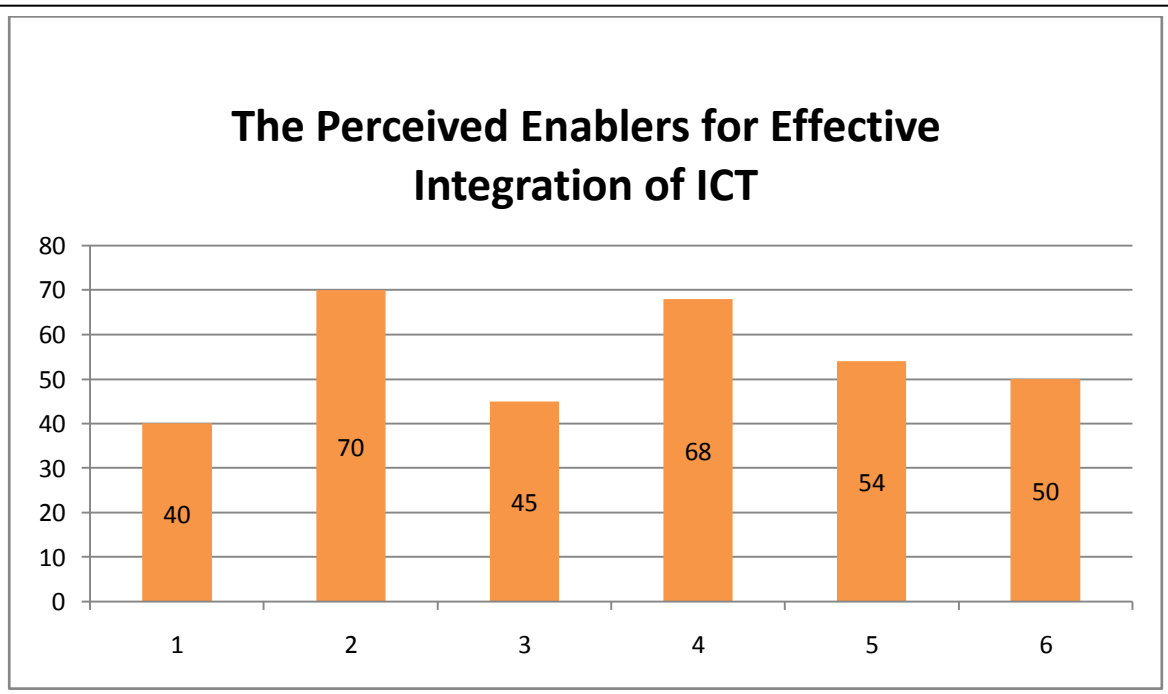
A teacher's professional development is pivotal to the change process in general. Sometimes teachers are sceptical about how to make most successful use of ICT as an influential and varied instrument and one which can potentially amend traditional teacher–student relationships. Teacher's professional development would support teachers and engage them to take the challenge and leave their comfort zone of the traditional and archaic norms of instruction.
The notion of teacher's professional development reflects the significance of teacher training which is highly acknowledged.

> If they are to invest time and effort in taking on the technology, teachers need to recognize and experience the budding advantages of employing ICT.

In this regard, teachers need to consider the facts that prop up the enhancements in teaching and learning, counting case studies and examples of effectual practice. If the crucial changes in education are to be done, they require strong leadership and support together with a school development map for the incorporation of technology. They also require technical support in order that they feel comfy in employing ICTs and are more excited to experiment.

3.4.3.3 Possible Enablers: Findings Related to Question 9

In the last question of teachers' questionnaire, participants were asked to indicate what they perceive as enablers for successful implementation of ICT in classroom teaching. In order to collect data, a five point Likert-type scale (5 indicating "Strongly Agree", 4 indicating "Agree", 3 indicating "Neutral", 2 indicating "Disagree", and 1 indicating "Strongly Disagree") and interviews. Means and percentages of the quantitative analysis are presented in the following bar-graph**.**



1. More budget
2. ICT integration in the course content
3. Construction of ICT centers
4. Technical support
5. Preparation of Technology plan for implementing ICT
6.The decrease of the course load of teacher

Bar-graph 3.9: Percentages about the Selected Statements of the Perceived Enablers for Effective Integration of ICT

Participants underlined the importance of some points that could support a successful integration of ICT. Informant teachers considered that integrating ICT in the course content (M=3.5), providing technical support (M=3.4), preparing

technology plan for implementing ICT (M=2.7), decreasing the course load of teacher (M=2.5) devoting more budgets (M=2.25) and constructing ICT centers (M=2) would be the helping factor for integrating ICTs. Results are presented in the table below.

Perceived Enablers	**M**	**%**
More budget	2	40
ICT integration in the course content	3.5	70
Construction of ICT centers	2.25	45
Technical support	3.4	68
Preparation of Technology plan for implementing ICT	2.7	54
The decrease of the course load of teacher	2.5	50
Overall mean	**2.89**	

Table 3.9: Results of the Perceived Enablers for Effective Integration of ICT

From the interviews with the participant EFL teachers, a number of the suggestions made are:

> "developing our computer skills in Computer and Computer based instruction does not assure our use of ICT as we need to have clearer plan s of how to use these ICT skills in teaching throughout training in methodologies and practices of ICT implementation."

> "We need to be provided with computer laboratories in, at least, central cities of our country in order that we can enhance self- efficacy and reduce our anxiety about applying ICT skills."

Participant teachers contributed suggestions and remarks on how to enable teachers to integrate ICT in their university language instruction according to their perceptions and classroom experiences.

- ***Focus on students' language learning objectives***

Participants stated that technology based instruction should be intended to assist students' needs, learning objectives, and types of activities. A number of teachers considered that technology use should be managed by language learning objectives to attain effective integration:

> My students are often told why we are employing technology in language learning process. It is not merely for fun. This is one technique to make them experience that technology is a component of language teaching process, not an extra computer skill s class. Students will gradually comprehend and adopt technology as a part of their language learning activities as they realize they will gain benefit from this integration.

> Students should be capable of using technology to get what they need from the WWW for their language learning. Needs assessment will help out both teachers and students to identify what needs to be worked up. With no definite objectives and self-evaluation, the use of technology may become a litter of time or even a distraction.

These comments put forward that employing technology should be matching with the needs of students, course objectives, and obtainable technology. Participants recognized that students should know the goals of implementing technological instruments in their language learning because this would make the task more important to them. As said by Egbert (2008), learning objectives and holding up attributes of the instruments should be assessed before the integration process taking into consideration students and their learning goals as basic to implementing technology into their instruction.

- ***Focus on Integrated Skills***

Some participating teachers pointed out that technology use in language learning would be more successful if the task was intended to involve multiple proficiencies and higher-level thinking proficiencies. Examples of considered effectiveness were provided by participants:

> I believe that any activity that incorporates technology should proffer students something different from what they usually perform in non-technology class. A web-based class such as an online link needs students to apply lots of skills comprising reading, writing and presentation. They do not only construct their writing but as well explore related resources, and read their peers' texts.

> I recommend that teachers act upon project based-tasks when technology is integrated. What I did in my class was to provide students

> with definite objectives of technology deployment for instance creating a video file promoting personal product in English and post it online. My students are so skilful that they are able to create a video and upload it on a webpage. They liked the activity so much since they were able to apply proficiencies that they are already good at.

For the participants' evidence, spotlighting the integrated proficiencies in a technology based task would provide good opportunities of EFL students to practice employing multiple skills in communicative and collaborative experiences. The teachers admit that technology has the potential to improve language learning through multimedia content, more communication channels and genuine language input. Because Internet technology proffers students with more resources, means of communication, and alternatives to design their thoughts in writing, students should be able to exploit those features in their language development.

According to Warschauer, Shetzer and Meloni (2002) technology-enhanced instruction has the potential to raise students' learning by enabling them to make use of multiple skills and construct their own understandable input. As well, web-based support materials may support active and creative mastery of proficiencies, collaborative learning, autonomous learning, cross cultural learning also critical learning.

- ***Focus on Interaction***

To effectively implement technology in language teaching, one point that came out was endorsing student interactions and peers assessments. It was recommended that students in technology-enhanced language classroom should be provided with more opportunities to learn from each other, as in the subsequent comments:

> My students were requested to maintain their learning log or files online so that their colleagues can have access to see and gain knowledge from their log. They are promoted to exchange feedback on their language products. Doing this, they spend much time discussing

> their learning experiences and cross-examining each other. This will support their language improvement in the long course.
>
> When online activities are applied, broad interaction among students should be underlined. E-mails or other types of CMC should be employed as channels of communication amongst students. Students can also interact with the basis of data they found in the WWW. They can think about, write about it, and impart them with peers and online communities. This is something that can complete what we miss in non-technology classroom.

Based on this evidence, a point came out about teachers identifying the interactive potential of technology to bring about more interactions among students and more options for them to act upon and exploit the language in authentic conditions. As Warschauer, Turbee, and Roberts (1996) declare, students are provided with opportunities to manage their own learning and to communicate their ideas at their own pace in network-based language learning environments. As well, some of the teachers in this study believed that spotlighting on interaction in web-based activities could bring about better fervour, willingness and engagement in students' learning.

- ***Focus on Pedagogy and Adjustment in Attitudes***

Participants in this study revealed their opinions on the attitudes of teachers that have an effect on technology integration in language teaching. In their opinion, technology would be employed more successfully if teachers adopted positive attitudes and practical approaches to integrating technology in teaching. Two example responses from participant teachers who placed emphasis on this issue are as follow:

> Though teachers are computer literate, they do not constantly realise how to draw on computers and the Internet in English language learning and in promoting language proficiencies. Lots of teachers have little

> real-life experiences with computer; then, they may require supportive attitudes towards technology. The big challenge here is how to persuade them that technology can improve language learning in order that they may desire to give a try.
>
> I believe it depends on how each person identifies the effectiveness of technology. Some teachers don't even attempt to exploit technology or attend a workshop since they are not convinced about it. If there is evidence to how successful technology is in enhancing teaching and learning, there will be more supportive attitudes towards technology among teachers and this may lead to effective technology integration in Algerian EFL classrooms.

As the above comments demonstrate, the participants believed that teachers' positive attitudes played a great role in making technology feasible in language learning. It hence propose that to make integration feasible, teachers need to have suitable comprehension as to how it can improve language teaching and be more ready to implementing new technologies in their everyday instruction. This is compatible with findings from other studies showing that teachers' supportive attitudes towards ICT and self efficacy in using computers are influential factors in technology enhanced-instruction (Albion, 1999; Albirini, 2006; Sugar et al, 2004).

Consequently, the above stated issues about effective integration were not a matter of having advanced technology at their working environments. In fact, these teachers considered that technology utilization needs to be merged with many proficiencies and positive attitudes from teachers, students, and instructional contexts. Teachers described that new technologies would be best used when good pedagogical policies were also considered and integrated. As well, flexibilities in the content and curriculum are very important for change and originality from both teachers and students. This denotes that technology adoption for these teachers needs pedagogical knowledge, available facilities, helpful pedagogical plan and institutional strategies.

This finding provides support to Egbert (2008) who puts forward that successful learning tasks need that teachers put focus on learning features and related technologies and employ technology only when suitable. Likewise, Young and Bush (2004) asserted that it is essential that language teachers identify their own best practice with technology by thinking about their needs, objectives, students, and classrooms before accepting a decontextualized usage of a given technology.

3.5 Results and Major Conclusions

In this chapter, the data gathered from of participants have been examined and the results acquired out of the analysis process have been presented. Results discussed above reveal that, overall, participants conveyed positive perceptions about the implementation of ICT in teaching learning process. In general, participants considered themselves as competent to employ ICT however their aptitudes were insufficient at the level of ICT advanced competencies. Most of participants believe that "lack of in-service training about ICT", "lack of technical support", "lack of ICT competencies" and "lack of teacher confidence" are the major obstacles for implementing ICT.

There was a contract also between the informants on the possible enablers ranking "updating their knowledge and skills" as the highest among the possible enablers. Participants believe that "lack of in-service training about ICT", "lack of technical support", "lack of ICT competencies", and "Lack of professional development on how to integrate technology" are major barriers for integrating ICT.

Findings from survey questionnaires, and interviews brought to light that teachers in this study realized the capabilities of technology to improve EFL teaching practice and to present effective language learning materials. In the main, participating teachers perceived the potential of technology- mediated instruction

to enhance EFL learning and teaching process. However, technology was employed for what may be considered as relatively low-level tasks in EFL teaching which mostly supported students' individual proficiency, practice and access to references and materials.

Even those lecturers who had not involved students in communicative and interactive usages of technology in teaching; their described perceptions reveal prospective technology acceptance in classroom teaching when other facilities are obtainable for example a more flexible curriculum, sufficient computer resources, and a suitable level of student language skill. Major benefits of technology in language teaching, such as supporting instruction and increasing students' engagement, were identified. Though, participants expressed anxieties that they were defied by the intricacies of the uptake process and limitations that related to the external and internal factors of technology implementation.

Teachers' use of technology in university context differed according to the accessible devices as well as individual teachers' practices and perceptions about what technology can do to improve their teaching. Teachers' attitudes and perceptions towards technology implementation are shaped by beliefs about their proficiencies, readiness and willingness to change on one side, and the prospective of ICTs in language teaching and learning on the other side. Furthermore, it was found that the main role for these teachers was adapting their technology-assisted instruction according to the perceived facilities and constraints of their instruction background. In the following chapter, the conclusion, discussion, implications, and suggestions of this study are presented.

3.6 Conclusion

This chapter tried to present the findings of the study related to research questions stated in the preceding chapter. The focal point of this study was to reflect the current status of ICT in teaching-learning process regarding how teachers are getting prepared to exploit ICT in their classroom instruction as well

as the current situation of the Algerian high education regarding how teachers use ICT in their teaching. Before providing the results of this study, demographic data of the participants were described. At last, results of the study were presented on the basis of the research questions.

CHAPTER FOUR

Discussion, Limitations and Recommendations

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4.1. Introduction

This research inspected teachers' perspectives about the uptake of ICT for teaching in EFL classrooms. It was found that; first, the extent of ICT competence was affected by training. Second, the use of some ICT materials was affected by access. Third, ICT use was affected by teachers' attitudes towards the use of ICT, which in turn was affected by their competence and confidence to integrate ICT in classroom instruction. Such uses aided to simplify some abstract perceptions, engage students, facilitate teachers' work and adapt more effective learning and teaching approaches. Overall, teachers did not employ ICT to totally change their teaching practices instead; ICTs in some situations were used to uphold teachers' traditional teaching practices.

Lastly, it is evident that unless teachers consider the use of ICTs as effective, they will be reluctant or unable to draw on it significantly. Therefore, the impact of professional progress for flourishing integration of ICT in the classroom is highly supported in the literature (e.g., O'Brien et al., 1999).

4.2 Potentials of ICTs Use in Developing Countries

Many studies have pointed out a number of successful experiences with ICT use in education system. In the present research we are going to spotlight two examples of ICT integration in education in order to extract the potentials of ICT use in some developing countries

- ***"The World Links program"***

The World Links program is a good start as a project, managed at the outset by the World Bank to put internet-connected computers in secondary schools and train tutors in Africa, Latin America, the Middle East, and South and Southeast Asia. The objective of the program is to perk up educational upshots, economic prospects, and global understanding for youth using information technology and new methodologies to learning (Kozma, 2005).

With the aid of the World Links program, lots of countries are now integrating ICTs as means of supplying teachers with new skills and setting up new pedagogies in the classroom. For instance, teachers in Chile get knowledge with computers for professional (eg. student marks, parent reports) and beyond classroom tasks (e.g. surfing in the net for instructive content and lesson-planning activities). The program also gives 200 hours of teacher training, focusing mainly on the concept of introducing ICT, using the internet for teaching and learning, using tele-collaborative learning projects, integrating ICTs into the learning strategies core curriculum, and new pedagogical approaches.

Accordingly, greater part of teachers and school principals claim that teachers trained with computer and teaching skills got upbeat attitude about technology and about teaching. Furthermore, some Asian countries, for example, India, Thailand, and Indonesia recognize the significance of integrating ICT to their education strategies. Actually, developed countries are investing in online education, smart schools, and virtual universities. In fact these countries are also fast catching. Such as, the Government of India, launched a determined program titled 'Vidya vahini' that is to make computer laboratories with abilities like internet access, an online store, academic services and web-casting over 60 thousand schools in the country in 2003.

Vietnam has also invested to expand a computer based information network system for education named Education Network (EdNet) and enhance computer services in learning institutions. EdNet is the country's initial step towards improving a computer based information network system for education. Thailand also introduced School Net, which has connected 4758 schools all over the country. Thailand School Net is using the internet to develop the general norm of education in the country by decreasing the crack in attribute of education between schools in urban and rural districts. In 2003, Pakistan invested 5.18 million US dollar to supply connectivity across universities, secondary and primary schools (Hare, 2007).

The integration of ICT in curriculum paves the way to the learner-centred with a self-learning environment that facilitates and promotes the students' learning experiences. Because of that some countries, such as, Malaysia in 1995 started up the project of smart school, a learning institution with purposes to endorse self-assessed, self-paced, and self-directed learning throughout the use of ICTs (UNESCO Asia and Pacific Regional Bureau for Education UNESCO Bangkok, 2004). The Sri Lankan Government also launches some strategic initiatives connecting 92 education centres across precincts, regions and districts to the ministry, and endorsing computer-training centres at 8 hundred chosen schools (UNDP, 2004).

In Namibia, introducing ICT into education and training systems, problems of access to the local and global knowledge and information considered to be crucial (Mikre, F.2011). Thereby, the education and training sector made the ICT policy for education to improve the use and growth of ICT for education and training. In this respect, the five definite development points for the use of ICT mentioned in the policy are: (1) research and improvement of suitable ICT solutions, (2) use of ICT, (3) repairs and support of ICT, (4) ICT literacy, and (5) ICT integration.

The policy document also explains the specification and benefits of ICT as follows: ICT offers a great pact of benefits in the delivery of evenhanded quality education affording a deal to ameliorate people's life. The necessity to make use of new technologies to upgrade the quality and effectiveness of education cannot be overstated. It is fundamental that students and teachers experienced the integration of ICT to develop the quality of education and technical skills of human resources, thereby bringing about increased output and stepping up productivity.

- ***"The WoredaNet and SchoolNet in Ethiopia"***

In the case of Ethiopia's education system, the uptake of ICT, mainly the computer and internet, is really incomplete though there is an evident strategy direction. Awareness conception and training to employ computer and the internet

for learning seems promising (Mikre, F.2011). The promise is based on the initiation of WoredaNet, an e- government communication and ICT plan, which are the main enablers for the rapid growth of ICT use (Hare, 2007). Both the public and the education sector have started to profit from Woredanet and ICT plan although the achievement is not to the wanted standard. The national e-education plan with integration policy of ICT use in education and the following action strategies has cropped up owing to the WoredaNet program.

The integration policy of the country, also called ICT for development plan number 6 has three main categories as explained by Hare (2007). These are (1) the Ethiopian National School Net initiative that is intended for networking 500 schools and the deployment of ICTs to improve the teaching-learning process at primary, secondary, technological and occupational schools, (2) the National ICTs in Higher Education. Initiative that aimed at implementing ICTs within universities, schools, and research institutions to support student learning, research activities, and community services, and (3) the national ICT Education, Training and Awareness Initiative that props up ICT awareness and literacy, adult education and lifelong learning, and virtual distance learning in the Ethiopia.

In addition, the integration policy identifies ICT as a budding for broadening access to education and support for education process and training at all levels. However, in spite of the attempts and the plans in place, there are challenges to organize the integration of the initiatives. Such as, if we reflect on the second initiative, very few courses from institutes of technologies in universities are in the Moodle (modular object- oriented dynamic learning environments) platform that uses the computer and internet connections to improve student learning through blended design.

The most challenging condition to integrate ICT policy in Ethiopian schools is inadequacy of available infrastructures. Although implementing ICT in the teaching-learning process was given by identifying the integration policy, only about 40 percent of schools in the country have computers, and the majority of which are in Addis Ababa, creating a rural-urban indifference to access for quality

education. Furthermore, those schools, which have computers, experience restricted or low access to internet connections.

In contrast, professors in higher learning institutes are expected to implement computers and internet as a teaching tool. Though, computers, network infrastructures and connections are not well-matched to the dimension of students' needs. As well, teachers do not have the basic skill to measure up the technology (e.g. Computers and internet) with new pedagogies that promote students' learning. Many teachers lack the essential ICT skills and feel upsetting, as they do not have the definite training required to be capable of employing the innovative resources in the classroom (Carnoy, 2004). There is still modest effort, for this reason the number of students in higher learning institutes using computers and the internet is trivial.

4.3 Guiding Perceptions for Future Research

Prospect research could spotlight two areas, to be exact classroom observations to determine the real use of ICT in teaching and learning seeing that this study relied only on self-reported data; and the significance of teachers' attitudes in the integration of ICT in schools.

ICT provides learners with an influential learning environment. Lots of countries make investments in ICT implementation as ICT is regarded as a potential tool for renovating teaching practice in any sphere. Being the major factor to integrate ICT into educational settings, teachers should be trained in how ICT can be used in the teaching process. In the current study, almost all of the respondents expressed that lack of effective training, as school level barrier, is believed to be among the main barriers for ICT integration into classroom teaching. Future research could focus on lack of training, as teachers' related barrier, and investigate teachers' attempts and endeavours to train their selves and therefore achieve successful integration of ICT; while surmounting challenges such as technical problems, lack of technical support and classroom management difficulties.

Unluckily, many higher education institutions cannot present positive technological experiences to teachers. Hence, teachers with negative ICT attitudes cannot transfer their ICT aptitudes to their students and engage them to use ICT in the classroom pedagogical practices. On the other hand, if we seek , in the future , to make language teachers integrate ICT tools into language instruction, we ought to study teachers' perceptions of ICT implementation because perceptions are good pointers of intents and future beliefs in future language teaching and analyse EFL teachers' needs relative to the incorporation of ICT into instruction.

Because teacher training is at the first peak and when 'the heat is on' for those who train teachers for potential deployment of ICT (Knierzinger et al., 2002), for further efficient solutions, particular awareness is required to review and renew the conception, the curricula and educational materials on a long-term bases in the faculties of education. ICT can construct an improved teaching and learning environment in schools (Akkoyunlu and Orhan, 2001) on condition that teachers are well prepared throughout a curriculum reformation from archaic behaviourist approach domination ; making the curricula, equipment and educational materials planed with a more globally adequate and advanced educational model founded on practicing and experiencing. In doing so, certain problems should be solved such as inadequate training of ICT, lacking access to ICT equipments and shortage of research in this area. Thus, there is an urgent need for pertinent experimental research in relation with the integration process (Altun, 2007)

Researchers have long supported the integration of ICT into foreign language teaching and teacher training (e.g., Blake, 2001; Schrier, 2001; Lord and Lomicka, 2004). In this regard, some studies investigated the concrete contents of technology training modules (e.g., Johnson & Johnson, 1999; Rava and Rossbacher, 1999; Hargrave and Hsu, 2000), while others probed teachers' beliefs and conceptions toward educational technology and its educational deployments (e.g., Albirini, 2006; Tondeur, van Braak & Valcke, 2007; Aydın, 2007; Teo, Lee, & Chai, 2008).

Differing from the studies conducted in proper higher education institutions that reported positive teacher attitudes toward the use of ICT as educational materials (e.g., Le and Le, 1999; Brandl, 2002), several studies conducted in higher education background revealed negative teacher attitudes toward the use of ICT in English language teaching. Lack of experience with lessons fully-designed through ICT materials, lack of chances to experiment ICT, the absence of practice in a technology laboratory, and lack of training were some of the fundamental reasons behind the negative perceptions of teachers' for integrating ICT into the language learning or teaching process. These findings give evidence in support of some research findings to point out that lack of effective training is the most often encountered obstacle to effective ICT integration (Albirini, 2006).

4.4 Implications and Suggestions for Practice

On the basis of the findings and discussions, the present research study attempts to provide today's teachers and language experts with following recommendations for effective integration of ICT into the teaching learning process. For a rewarding integration of ICT into teacher education programs, national plans, strategies, policies, and ICT norms should be evolved or adopted (Özden, 2007). Effective policies, strategies, plans, and norms regarding this issue ought to be updated, improved, and accessible for all stakeholders. The range of strategies and norms which are stated in this section can provide teachers and stockholders with the basis on which the assimilation of ICT in the standard curricula can be structured (Sicilia, 2005).

ICT related courses for teachers might be reconstructed to enable them gain proficiency of "teaching with ICT" or "advanced ICT competencies". They also require extra opportunities to introduce ICT into their subject-matter, so these kinds of courses might be reconstructed in agreement with teachers' subject-matter area needs. "Computer" courses might be provided to teachers in order to prepare them for ICT related course which comprises the assimilation of ICT into the scope of studies (for example in math, language, and chemistry).

Teacher education programs need to give ICT training for teachers that match with their particular needs according to their fields of speciality. As for ICT issues, essential plans can be designed by collaborating with other establishments that provide the need for human resources, technicians, for instance. They can supply just-in-time training and set up peer cooperation. Peer support and technical support might be selected as training methods. With the endeavour to enhance software, centred arbitration can be helpful in supplying software. Projects or objects can be improved and spread to develop a discussion environment. This can boost the collaboration between all those establishments in support of effective ICT integration (Yin, R. K, 2003).

The above stated collaboration may also be propped up by supporting best examples/experiences of ICT integration into the teaching learning process. Additionally, these examples/experiences may be published in written manuscripts such as pamphlets or books.

4.4. 1 Suggestion for Universities

ICT resources and infrastructures in Algerian universities are restricted. They are to be enhanced via critical policies in order that future teachers will be well-trained for a digital age. They should make large investments for procuring innovative, updating, and advanced hardware and software. Particularly, it is the undertaking of the government. So, the government should supply institutions of higher education with larger technology budgets (Wong, E. et al, 2008).

More willingly than restricting ICT within some centers (laboratories) and within some courses (ICT related courses), they can be extended to the entire physical environment and to all kinds of courses. This can provide more genuine settings and engage students in more training. Besides, laboratories can be kept accessible for the use of students not merely throughout lesson hours but as well after the lessons by using student assistants with the endeavour of exploiting the available resources.

The procedure of integrating ICT in education needs not only physical but also human resources. If pedagogic staffs desire to incorporate ICT into their instruction, they must expend more time and resources. Though, this additional attempt is in fact not promoted or rewarded. As Picciano (2001) mentioned, teachers may be assisted and propped up in the form of recompense as a reduction in the workload for example. In the short-term, reducing the workload of teachers may not be feasible when it is related to their insufficient numbers. When physical restraints are decreased, ICT related courses may be proffered in computer laboratories instead of traditional classrooms and they may be derived from applications rather than hypothetical data (Kozma, R. B., et al 2002). Suitable trainings for more effective ICT integration could be arranged by teachers. About the ICT integration into classroom instructions, teachers noted that "lack of training about ICT" is the main central problem.

Instructional Technology Centers (ITC) may be constructed in universities to guide the departments to exploit ICT tools successfully and incorporate them into an academic environment so that to supply trainings (Reinhartz, J., & Beach, D. M, 2004). Furthermore, Instructional Technology Sources Centers (ITSC) may be established to manage and pick which information technology materials will be procured and how accessible resources could be employed in the most successful and proficient way. These centers may be also assigned for peer support to teachers and public use of available ICT resources.

Introducing ICT into the teaching learning process can successfully be achievable if future targets and policies are set and applied in a designed approach. Technology plans can be arranged and technology assistance task can be used for both technical and instructional aims (Twining, p. 2002). So as to support a large exploitation of the Internet, so-called "blackboard of the future", suitable web sites are required to prop up all courses. Moreover, teachers may be supplied with project-based and collaborative efforts, and communicate their results by connecting with other students (Squires, D., & McDougall, A, 1994).

The data presented proffered a matching perspective to those plans which assess the effectiveness of ICT programs just in terms of *output*, ignoring the significance of *Impact*. In other words 'output refers to the direct product of the activities that are carried out, such as number of new computers purchased, number of lessons using ICT, etc. Impact refers to the changes brought about by these activities, in terms of, for example, improved learning' (The Danish Ministry of Education, 2006, p.7).

From this standpoint, it is essential to shift from the *digital divide*, technology-centred, toward the *knowledge divide*, where the key divergence is described by the development and exploiting of knowledge. Computer creative Alan Kay said technology is '*only for people who are born before it was invented*' (Tapscott, 2008, p. 19). For instance, an iPhone which is an amazing break-through technology nowadays may only be a communication tool for those who grow up with it. It is essential, so, not to limit the term ICT to an unbending set of gadgets. The innovation of ICTs will constantly rely on the users' perception (e.g. experience, age, type of use, level of interest, etc.). The nature of ICT is developing thoroughly in a concise period of time and for that reason it is so significant to keep on to update the definitions, perceptions and policies regarding the exploitation of the these technologies (Cox, k et al,2000).

So as to implement a broad approach to *ICT skills* further than the instrumental (and basic) usage of technology, it is critical put forward the term *e-competent user*, which alludes to a person who can relate the use of some particular technologies with other aptitudes and knowledge. E-competencies are a set of competencies, proficiencies and aptitudes to make use of implied and explicit knowledge, improved by the use of digital technologies and the planned use of data. E-competencies exceed the utilisation of any particular ICT, incorporating the skilful use of data and operating knowledge to work independently and jointly in varying contexts. Five underlying concepts that constitute the term *e-competencies* have been identified: awareness; technological literacy; informational literacy; digital literacy and media literacy (Clarck. D, 2004).

However, what really matters in terms of employability is realising the significance of constantly working on new learning, abilities and aptitudes. (Punthumasen, p. 2008). In that context, new public plans, ground-breaking academic programmes (training tutors, new curriculum, e-assessments, etc.) and ICT competencies standards, along with other policies, will come out only if e-competent policymakers, e-competent teachers and e-competent employers work in cooperation (European Commission, 2004).

Eventually, this review of the evidence reveals the need to develop further studies based on experiential queries of how precisely students employ ICT in the classroom, and at home among diverse informal-learning environments. The large expansion of cell phones, and low-cost technology and the rising significance of the informal learning require new investigations in this field.

If the effect of ICT on the learning process appears to be mismatched, it will be essential to think about new materials, approaches and studies. It is obvious that there is a considerable need for new investigations to crucially assess the efficiency of public strategies and educational programmes. Further studies and reliable partnership information (related to the *output* and *impact* of ICT) will enable combination of a hypothetical structure to hold the design of public strategy in the upcoming decade.

One more challenge that is faced is how to check and confirm informally obtained e-competencies. There are debates and choices to be made relative to the measures and methods of how to evaluate formal and informal acquisition of ICT competencies (European Commission, 2004). There is much research evidence mentioning the complexity of assessing the capacities and aptitudes of students, chiefly relative to those higher-level skills which can engender more complex and unpredictable outcomes. Such as, when the deployment of ICT is associated and developed with analysis and assessments in complex tasks, problem solving capabilities and circulated collaboration, among others, the assessment of those competencies needs to be flexible to the specifics of a given context or case study.

If the transferability and the adaptability of aptitudes are what actually fires up formal and informal learning then the challenge will be in measuring the efficient adoption of these competencies in the framework of performance. To shun any reductionist perception, regarding the integration of ICTs in education, it will be essential to have a flexible and lively approach so as to complement the adoption of the digital technologies with other critical proficiencies.

There is no such 'one-size- fits-all' policy to implant novelty in the classroom from one day to another. Though, the current status of education requires novelties and new plans to enhance the teaching- learning process to develop e-competent students nowadays who expectantly will become e-competent employees tomorrow (European Commission, 2004).

4.4.2 Major Principles

In line with diverse reports, there is a mismatch between the skills acquired (in the formal educational environment) and the skills required (e.g. employers, firms and industries). In that sense, it is vital to apply policies to instruct the future labour force on the basis of the needs of the modern labour markets (e.g. National Occupational Standards in UK) [e-skills UK, 2003]. It is vital to mention that the integration of these strategies and policies should be frequently reconsidered and their effect gauged that continually develop (among other aspects it will promote the permanent updating of the e-competencies concept). The new approaches could also be a handy reference to assess ICT competencies of students.

- **Stakeholder partnerships**

Stakeholders (e.g., education centers, public and private educational/training departments, ICT service suppliers, business sector, etc.) must be recognized, induced and engaged to develop the conversation between education, industries and customers. Collective plans are needed to support changes in the education field but with specific spotlight on the suggestions and needs assisted by the business and technology sectors (OECD, 2006).

Strong co-ordination across sectors to work on combined actions between policy- makers and the private sector is crucial to endorse the up-skilling and re-skilling of the existing and upcoming workforce. Regarding the existence of major joint plans in the professional framework (as in the 'European e- Competence Framework') it is essential to incorporate some of those shared principles in today's training and development agenda that hearten the acquisition of 21st century skills in the education of the future decade's professionals. On the grounds of this reflection ,schools for instance, are supported not only to develop and instruct the ICT competencies that the upcoming labour force will need, but also to assist co-operation between schools and other 'learning organisations' counting private corporations (OECD, 2006).

So as to assure that the new generations of professionals will have the essential ICT literacy skills (i.e., basis knowledge, technical skills and essential evaluation skills) a wide range of actions will require to be evolved. Some instances of these plans are the continuous taking on and updating of e-competencies, setting norms, constructing systems for gauging competencies and endorsing the acquisition of ICT competencies.

- **Research and development**

The adoption of permanent and reliable research and assessment is highly required to assure that the teaching-learning process and training experience connects with the difficulties of today's knowledge-based-economy. Policy makers and instructors need more evidence from crucial studies of the real use and influences of ICTs on both teaching and learning process. It will aid to realize what comes off and what does not and why some things come off in some contexts and not in others. Practical studies can supply data on the issues and main concern recognized, such as: the traits, advantages and shortcomings of innovative learning paradigms, new networking potentials from ICT- supported learning; the opportunities for autonomous learning and strategies of integrating ICTs into classroom instruction to bridge sooner than strengthen economic and cultural conditions (Nash, Dutton and Peltu, 2004).

The taking up of e-competencies policies should be structured cooperatively by multi-institutional sides (comprised of policy makers, managers, and academic and specialist views from different areas). The suggestion for this panel is to thoroughly assess the efficiency and influence of those strategies addressed towards developing an upcoming e-competent labour force (Ibid).

The integration of a longitudinal assessment could afford essential data related to the development of an e-competencies approach, some instances are: assessing the effect of ICT aptitudes in the users' performances, investigating the appearance of other skills fuelled by the utilisation of ICTs, studying the efficiency of adaptive evaluation, analysing the performance of new experts who have been trained with an e-competencies strategy and assessing the connection between employability and e-competencies. The research of developmental design is pertinent not only in terms of *national* evaluation but also attempts should be addressed to prop up *trans-national* studies to assure effective treatment and that consistent results are upholding the policies and strategies of the digital age (Lankshear, C. et al,2000).

- **E-awareness**

Upholding the development and permanent updating of ICT capabilities in diverse learning environments (formal and informal) by supplying leadership and practical devices to the education sector is one of the means to shift towards an e-competent workforce. Stakeholders from diverse sectors should work together so as to boost motivation and engagement with the exploitation, training and adoption of digital skills.

The review of varied studies and approaches uncovers the need to engage individuals from diverse sectors of society in the development of e-competence. It is essential that the major aim of this endeavour (motivation) goes further than developing basic ICT skills. Current and future workers have to realize from a wider perspective the opportunities and challenges stemming from the adoption ICT in knowledge based- economy. That is to say, it is significant to understand that an acquisition in e-competencies is equivalent to an increase in the worth of

the labour force. The acquisition of e-competencies would boost the rate of employability of a competent worker (Card and DiNardo, 2002).

Another factor essential to integrate in this engagement strategy is that in a knowledge-based society the permanent acquisition of e-competencies has to be understood as a lifelong process of learning. This denotes that students (tomorrow's employees) have to understand the need to update their proficiencies frequently (under formal and non- formal learning approaches) because of the speedy evolution of ICTs. However, it is important to mull over the attitude of those who consider that the globalised and archaic awareness campaigns are not very successful strategies for raising the population's e-competencies (Danish Technological Institute, 2007).

From this perspective, it is advocated that attempts are made to support the acquisition of these abilities in the students' or employees' own environment, where they may be better encouraged to develop their skills. This has to do with enhancing the adoption of ICTs in everyday life by formal and particularly informal strategies in order to connect with particular needs, backgrounds or incentives (Balanskat, Blamire and Kefala, 2006).

- **E-Inclusion**

European Commission, (2008) states that 'Europe should become the most competitive and dynamic knowledge-based economy in the world'. It is fundamental that a trans-national agenda of integration is developed with a perspective which comprises all those who are distant from the information society background (phenomenon also known as the digital divide). In this context, it is vital to incorporate not only the perfect model of a 'knowledge employee' like young, professional, highly educated, ICT proficient, working in a middle or big urban district, etc (Eurostat, 2006). The e- inclusion strategy takes into account the integration of other targets like low skilled employees, jobless, young students, senior employees, etc.

Thirty-six per cent of the EU population has no computer competencies and more than seventy per cent of people not educated beyond lower secondary level have no basic e-competencies (Eurostat, 2006). Though, regarding the stages mentioned in the European e- inclusion' report (European Commission et al., 2008), it is essential to carry on promoting attempts, strategies and plans to facilitate access and connectivity to all sectors of society counting training in the fundamental deployment of ICTs, but without disregarding the acquisition of more refined and proficient digital abilities (informational, media and technological literacy as well as e-awareness).

From a gender perception, the e-inclusion agenda should also supply new initiatives endorsing women of all ages to exploit ICTs. Different studies reveal the need to engage women in the knowledge-based society. 'The term 'digital divide' alludes to the disparity between individuals, households, dealings and geographic areas at diverse socio-economic levels with reference to their opportunities and levels to access ICTs in addition to their exploit of the Internet'. (OECD. 2008).The first level stands for the technological access to ICT. The second level is associated with the acquisition of basic ICT skills. The third level points up the improvement of a sophisticated use of ICT. The ultimate goal is, thus, to decrease the gender gap that is still encountered in the use of these devices (Eurostat, 2006; Turmo and Lie, 2006; DTI, 2007; OECD, 2007b; Ramb, 2008). It is vital to move towards a thorough understanding of the knowledge-based society.

Worth mentioning are those up-skilling and re-skilling strategies similar to: engaging non ICT users, training employees (or instructors) with low ICT proficiencies, supporting ICT training in small and medium enterprises (SMEs) and subsidising the exploit of low cost technologies, among others (European Commission, et al., 2008). These strategies should be heartened by adopting flexible approaches of acquiring ICT skills, for instance informal learning, learning by doing or peer coaching.

- **Standardisation**

There is an all-purpose need to identify ICT competencies standards and certifications. In this sense, it is essential to think about the adoption of a mostly determined and updated set of key e-competencies, recognized by both the education and the industrial sector (Tha, S.2003).

The common understanding of e-competencies should be universally acknowledged so as to authorize the mobility of the future labour force. However, before taking on any particular measure it is essential to describe a basic knowledge of 'ICT literacy'. Specific descriptions of the key term and accurate definition of the fundamental concepts of e-competencies have to be adopted (Tha, S.2003).

One more strategic approach for describing the ICT competencies standards is to reflect on standards and comprehensive documentations that by now exist. Such as, the European e-Competence Framework which gives rules for the skilful use of ICT was constructed for provide businesses, the public sector and social partners in Europe. A matching strategy is the European Computer Driving Licence Foundation, a noteworthy example of a global standard in end-user computer proficiencies certification. Both strategies are focused on the generation of a structure, a measure and a certification that represents the common perception of ICT in the European context. These plans have been designed to prop up and help professional mobility through Europe. These experiences may be regarded as best practices of measuring and standardising some of the skills connected to the beforehand mentioned e-competencies.

Another focal point relative to the definition and adoption of ICT standards, mainly regarding the basic e-competencies, is the need to update them constantly. It makes no sense to uphold the adoption of any particular ICT competencies standard if it is not constantly revised and perked up. It is advocated that an e-competence prerequisite framework be flexible in both content and method so as to hold up the permanent formal and informal learning processes (Tha, S.2003).

4.4.3 Educational Initiatives

The change in the future work force requires a new paradigm of teaching which influences every learning environment counting formal and informal learning contexts, individual and collective educational approaches, face-to-face and virtual learning and other places for thoroughly knowledge experiences. The new paradigm should allow students to acquire knowledge and proficiencies in the classroom, in the place of work, or anywhere else to enhance their employability in the future but it will need a whole new comprehension of the effectiveness and applicability of those new skills.

To keep away from any reductionist, unsuccessful or disappointing learning experiences corresponding to the integration of ICTs in education, it is essential to match the adoption of digital technologies with a novel teaching and learning paradigm (OECD, 2004). The instructive use of ICTs requires much more than purchasing new computers or the rigid adoption of any particular standard because 'the key word is transformation. If the organisational and institutional context does not support new working methods, educational practices will not change' (Balanskat, Blamire, Kefala, 2007, p.7).

In several case studies the assimilation of ICTs in schools has been first and foremost used to support the existing teaching paradigm, more willingly than shoring up a major qualitative change in learning. If it is by now known that the effect of a particular ICT is related to the competence of the teacher to use it proficiently for pedagogical purposes, then the face to- face teaching of ICT will require significant attention (Law, Pelgrum and Plomp, 2006).Still realising that there is no one-size- fits-all strategy to implant the technology in the classroom (Kirschner, Sweller, Clark, 2006), there are some strategies that seem to perk up the learning process throughout the deployment of technology.

Instances are project-based learning, real-world problems, self- learning activities, collaborative and interdisciplinary learning, constant acquisition of new competencies and knowledge transfer. According to preceding studies, endorsing

informal and lifelong learning in students are also important strategies to be considered (Eurostat, 2005; European Commission, et al., 2008).

The improvement of e-competencies has to be matched with flexible forms of training teachers, at different settings, with different meanings. Teacher-training initiatives set enthused targets, but describe less the particular proficiencies crucial to embed ICTs into teaching practices, the way of how to get these skills, or the kind of pedagogy that should be followed (Balanskat, 2005). In contrast, it is essential to bring up that the insertion of technologies in the classroom to be part of a deeper change if a thorough approach to acquire the critical and functional skills is adopted.

These studies that illustrate the incompatible and unpredictable effects of ICT integration in today's education elucidate that it is essential to improve not only the approaches to acquire knowledge but also the student's proficiencies. Definitely, this is a multidimensional experience (Cuban, 2001; Law, Pelgrum and Plomp, 2006) and the digital technologies will not supply all the answers (Daniel, 2002).

As UNESCO puts forward the acquisition of ICTs in education has to do with strategies, educator training, and pedagogy, curriculum, measurement, technology and academic institution, among others (UNESCO, 2008).

- **Re-think the curriculum**

There is not sufficient data to affirm an apparent relationship between the adoption of technology and an enhanced learning performance (e.g. language or maths test). Also, there is research that states the non- relationship between the number of hours employing a PC in the classroom and the student's performance (Korte and Hüsing, 2006). Concurrently, other studies have brought to light a strong correlation between the student's performance and the deployment of ICTs at home (OECD, 2005d). At the same time, there is evidence that students feel more comfy using their computers in the classroom (Ba, Tally and Tsikalas, 2002).

Reflecting on these findings, the recommendation is to arrange the integration of ICTs as a complex and flexible strategy (OECD, 2005), where it is

critical to bear in mind that the performance is not only a subject of quantitative use of the PC but that there are other aspects like the context of use which also is a significant factor (OECD, 2004).

An e-competent curriculum ought to endorse the progress of meta-cognitive capacities in the students, allowing them to consider 'what we want to know, how we come to know and how we state our knowing' throughout lifelong learning plans that trigger personal higher-order thinking skills (Rosado and Bélisle, 2006). At last, it is advocated to reflect on the exploit of digital devices to develop other 21st century competencies, such as soft skills to endorse creativity, novelty, testing, problem-solving, collaborative work and critical thinking.

- **New assessments**

E-competencies are revealed by experimenting students' potentials of using these skills and knowledge in restricted contexts (e.g. use of word processor). Such meta-competencies cannot be experimented employing closed-ended questionnaires. The use of knowledge and skills in different contexts will generate various outcomes. For this reason, the assessment of e-competencies should be founded on a flexible approach that ponders the blending of diverse methods and tools. It is significant to state that the blending of various outcomes is a pedagogical challenge for the teachers, though students should be requested to resolve a diversity of tasks dealing with diverse data and technologies.

Considering the impact of ICTs on education (see chapter 1 of this study), it is essential to analyse whether teachers and researchers are considering the unexpected outcomes. Do policy-makers have an obvious or pragmatic vision about the expected outcomes of ICTs investment to be? The taking up of a new type of evaluation is still a matter to be discussed. There are standpoints which propose shifting towards the taking up of e-assessment, virtual reality replications, e-portfolios and other strategies, which even comprise computerised adaptive testing (QCA, 2007; Silva, 2008). However, the intricacy of this feature requires new studies in this area (Shapiro and Hilding- Hamann, 2008).

- **Non-formal and informal learning**

It is advocated that the learning process is assessed in a broader perspective. The more consideration that is given to the concept of life- long learning the more pertinent will be the formal and informal learning and its qualifications (Council of the European Union, 2004). Therefore, 'schools and higher education are less and less the unique places for in-depth knowledge experiences' (Rosado and Bélisle, 2006, p.36).

E-competencies are significant irrespective of where or how these have been obtained. For example, the most advanced countries (World Bank, 2008) declare that in these recent years their students acquired ever more digital competencies from self and informal learning (Eurostat, 2005) [see also informal pedagogy of digital literacy]. It means assistance provided by peers and colleagues or other methods of learning, like trial and error or self- learning in a greater diversity of settings can go beyond the school.

Other studies state that the growing significance of ICTs as instruments for daily life is not limited to the place of work or place of research. In that sense, the challenges that education encounters is recognizing which ICT skills should be instructed in the formal learning environment (school) and which ones should be built up in 'other' contexts (such as home, free time, social networking or self-learning) (Vox et al, 2008).

Students learn competencies beyond school. Unluckily some of these competencies are not admitted and not certified in school. In that sense, the challenge is to plan dependable strategies to recognize and bear out these learning outcomes that occur inside and outside formal learning (European Commission, 2004). But, how well prepared is the educational system to measure and authenticate the acquisition of the e-competencies by non-formal approaches? That is a critical point to be investigated in future studies (see 'tacit knowledge' in Polanyi, 2002).

- **Bottom-up**

Mainly all the policies and strategies to endorse and shore up the adoption of ICTs in education derive from the government (BECTA, 2008). Informal Learning is learning that is brought about by everyday life activities associated with work, family or leisure (Miller, Shapiro, Hilding-Hamann, 2008). See the 'Education and Training 2010 Programme', European Commission, the UNESCO, the OECD, among others).

Instructors, students and parents are not often part of the decision making of what sort of technology has to be purchased for the classroom and how it should be taken on and employed. In most cases, instructors and students consider ICT classes as passive subjects, where they are given the technology bought by others (usually from a public plan).

It appears to be significant to conceive other strategies for the incorporation of technology in education. A more participatory approach (bottom- up), for example, could be when instructors and students are enquired what technology (hardware and software) they consider essential to accomplish some particular objectives or performance. Probably, this would get richer outcomes and involve them in a better way concerning the adoption of ICTs. There are experiences that reveal how the changes in the organisational framework or in evaluation procedures are still dropping back (Balanskat, 2005).

- **Up-skilling students**

Conceivably due to the uptake of new technologies and their appreciation by the new generation, there is a well-liked perception of children's expertise in using electronic devices. This evident proficiency highlights that they are more multi-tasking users of ICT than their instructors. There are also colloquial terms to differentiate between the young ICT savvy and all the old technologically illiterate individuals. That is to say, it is the combination of digital natives (native speakers of the digital language of computers, video games and the Internet) and digital immigrants (those of us who were not born in the digital world) (Prensky, 2001). Even realising that these kinds of perceptions are generally adopted, there is no

evidence in academic researches that youngsters are expert users, or that the technical aptitudes of youngsters have developed through time (Rowlands, et al, 2008).

Shared perception, then, does not essentially tone with the studies' findings. It is mentioned that 'the way youngsters gauge - or quite fail to gauge - information from digital devices is exceptional. Although, there is little evidence that this competence has developed over the last 10 to 15 years' even if, their self-estimation relative to their capacities is so high (Rowlands, et al, 2008).

Another essential analysis corresponding to the students' lack of skills spots the insignificance of their reading and TV watching habits, lack of critical thinking skills, immature outlooks on intellectual proficiencies and the authenticity of data found on the net, in addition to high anticipations together with low levels of self esteem (Hartman, Moskal and Dziuban, 2005). On the basis of these data, it is appealing to see that students overestimate their proficiencies and anticipate that the computer would provide them with immediate answers.

Instructors, who also have to improve and endorse some of the e-competencies beforehand explained, have a wide opportunity in terms of: 1) making students know the need to obtain other skills and literacies, beyond the technological ones, as for instance information literacy, e-awareness; 2) taking benefit of students' eagerness for ICTs to be engaged in the classroom; 3) supporting peer learning and acquisition of e-competencies between peers, teacher-to-teacher, teacher-to-student, but also student-student and,-why not, student-to-teacher.

- **Teacher ICT standard**

There is some expectation that if instructors are more comfy and able to use the new ICT instruments there will be a more effective implementation into learning activities of the current educational systems (Barret, H. 2006). It is advocated that teachers are heartened to reach ICT standards so as to take the best of the technologies, but also to improve corresponding competencies (Boud, D., & Felleti, G. 1991). It is extremely enviable that the adoption of ICT abilities standard (see UNESCO) will come to proffer actual incentives to educators after

attaining their aptitudes. ECDL programmes for teachers and students (Earle, R. S. 2002), for example, can be regarded as a tool to confirm 'technological literacy' (mentioned beforehand in this section).

From the educational standpoint, this kind of standards further than developing the ICT performance of students and teachers, could facilitate the comparability of countries all along Europe, also called pan- European digital literacy framework (Drenoyianni, Stergioulas and Dagiene, 2008).

- **Pedagogical skills**

Realising that the effect of ICTs on students is shown as extremely relying on teaching approaches, the teacher's role during the process of adopting technology appears to be very strategic. Consequently, teachers' training has to be affluent in resources, best practices and data so as to supply them with the essential knowledge, skills and attitudes to promote the acquisition of e-competencies in their students (Law, Pelgrum and Plomp, 2006).

Some features that could be incorporated during teachers' training involve e-competent teacher schemes to build up the proficiencies and skills that allow the know-how to pedagogically introduce ICTs in classrooms, making the best use of the technologies to enhance the students' learning (Balanskat, 2005). It entails the improvement of higher levels of critical thinking and knowledge of the connection between technology and education. The informal use of ICTs is also a factor to boost teachers' pedagogical competencies (Balanskat, Blamire, Kefala, 2007), which should aid to upgrade new learning material (e-content) and embed effectively other resources to the student's (formal or informal) learning environment (Danish Ministry of Education, 2008). Recommendations also involve the back up of sharing best practice and other experiences between co-workers, like peer-coaching.

In this area, the British Qualifications and Curriculum Authority (2008) states that some of the aptitudes required by instructors are: identifying difficulties and delineating tasks; searching and selecting data; systematising and constructing data; analysing and interpreting data; collecting and refining data; modelling;

exchanging data ; showing data and finally reviewing, testing and evaluating the effect of ICT. This approach enhances corresponding technological and pedagogical competencies as a means of providing the abilities required to successfully assimilate ICTs into the classroom. In this sense, it is critical to prop up the attempts of exchanging visions and experiences between teachers. The final result of this up-skilling approach would be much more than an ICT 'savvy' teacher. As Siemens (2005) puts forward, "learning is a process of connecting specialised nodes or information sources". In that sense, the technology should be considered as instruments to enhance the connection of sources to construct new knowledge.

Finally, the adoption of an e-competencies standard strategy in the education area could also assist the execution of a European credit transfer system (Siemens, 2005). Currently, the absence of this system of teacher training triggers the matter of mutual recognition of competencies obtained within permanent professional development of teachers. This can have a great effect on the mobility of teachers to undertake a particular training (Balanskat, 2005).

4.5 ICT Integration in EFL Context

The National ICT Policy document admits that there has been an international shift from industries founded on unprocessed resource products towards those founded on knowledge and human resource. As a result, countries with pedagogical systems that have been effectual in the progress of the human resource ability and proficiencies required for this industrialized shift have been more effective, mainly in the universal market environment being supported by the World Trade Organisation (WTO). ICT has been one of the major points on which education systems in some countries have set major spotlight.

The Report of the International Commission on Education for the 21st Century recognizes a variety of "education tensions" that exist in this century. These comprise international *vs* regional, global *vs* individual, spiritual *vs* material, tradition *vs* modernity, necessity for rivalry *vs* concern for equivalence of capacity, development of knowledge *vs* human being's ability to acquire it (UNESCO

2002). Much of these stresses have been increased by the existence and effect of ICT's, and so our education scheme has investigated a set of opportunities for improving proficiencies in ICT, towards the end of exploiting its huge prospective for developing education systems and perking up teaching and learning processes.

Despite the marvellous opportunities and advantages proffered by ICT, there is a plenty of issues to be tackled to effectively implement ICT into education systems. ICT, like any influential device, can do as much appalling as wonderful. Ineffective pedagogy integrated on a computer may have its negative impacts due to the influence of the technology. Moreover, the integration of ICT in the education system can be very costly, both in financial and human conditions (Institute for Information Technologies in Education UNESCO 2002).

Educational managers and planners are then encountering the challenge of (1) certifying that the assimilation of ICT into the classroom is planned with great care so that the budding advantages are attained, while the risks are eradicated or reduced; and (2) attaining the benefits of such great savings. So, there is a must for thorough planning.

This study presents a structured outline for integrating ICT in the education system in three Algeria universities, borrowing generously from the OERU's (Organisation of Eastern Caribbean States Education Reform Unit) Model Strategic Plan document, but also works up the plans for integrating ICT, focusing on some local and global ICT integration strategies.

4.5.1 Applying the strategic actions: Facts and Realities

The use of ICT tools in EFL environment has become a fact that has imposed itself within the last six years. After 2008, English language departments within the Algerian universities inaugurate a big and potential project for the teaching of English with one objective to improve the attribute in terms of strategies and attitudes undertaken for the teaching of foreign languages. Those budding approaches towards bumping up the level of quality in the teaching of EFL have been identified by adopting inventive means and pedagogies that depend

mostly on promoting learner-centeredness and learner autonomy particularly after the partial institutional reforms of the Higher Education system in 2004 embodied in the Licence Master Doctorate (LMD) Reforms. Along with those restructurings, the classroom is not any longer educator led, but instead student led where EFL learners are shoved to take responsibility of their own learning (Guerza,R. 2015).

In this regard, educators are considered as mentors or facilitators of learning. To set into practice those perceptions, the Algerian universities have furnished computer laboratories with very sophisticated ICT tools to reach those targets. Other attempts enthused by this zealous project arranged promising videoconferences and shared their experiences of employing podcasts in their teaching and other inventive instruments. This is just to bring up that ICT in our EFL environments has turned to be an assured fact that has placed itself as an essential instrument for the sharing of knowledge and EFL skills (Hamdy,A.2007).

4.5.2 ICT Integrating in the Global Understanding Program

Teaching is becoming one of the most challenging occupations in our community where knowledge is developing speedily and much of it is accessible to students and teachers in one go (Perraton, Robinson, & Creed, 2001). As new concepts of learning have improved, tutors are anticipated to assist learning and make it vital to students more willingly than just to provide knowledge. Contemporary developments of ground-breaking technologies have offered new opportunities to teaching occupations, but concurrently have placed more pressures on tutors to know how to use these new technologies in their tutoring (Robinson & Latchem, 2003). On the shade of these challenges, tutors are asked to constantly retrain themselves and obtain new knowledge and proficiencies while giving instruction (Carlson & Gadio, 2002).

Nowadays, a diversity of ICT can enhance not only the teaching, but also learning process as well. Furthermore, ICT can endorse international collaboration and networking in education and occupational progress. There is a variety of ICT options (videoconferencing, multimedia presentation, web sites) which can be utilized to encounter challenges that tutors come upon today. Actually, there has

been rising proof that ICT may have the potential to give more adaptable and successful modes for permanent occupational progress for today's tutors. In view of rapid improvement in ICT, particularly the Internet, traditional first teacher training and in- service sustained training institutions worldwide are experiencing a quick change in the outline and content of their training and teaching process.

In a lot of universities around the world today, the integration of technology in education is one of the top precedence of governments which assume immediate results with an ever rising rate of success from the students. This widespread use of technology in all areas is inevitable as students are bounded by web exploit and internet surfing as a virtual fact. Algeria amid other countries meets this new experience as well, and resources are accessible in some universities for the objective of a more efficient teaching, improved learning and autonomous education. Some tutors adjust their lectures embarking upon students' needs by new ICT materials accessible in classrooms; visual aids mainly comprise laptops linked to data shows and over head projectors with image sound and movies, allowing the students to review data according to their learning style (visual, auditory or kinaesthetic also called tactile).

Therefore, most of the mission is still to be performed outside the classroom as autonomous learning toned with informal learning. A brief focus on the insights of the internet is that many educational contexts are considered to be effective but few virtual learning environments are devoted to Algerian students as a follow up of their pedagogical agenda. For this reason, some Algerian universities challenge to adopt the strategy of ICT integration in education and strive to make online courses accessible and blended learning reachable. One of these challenges is the Global Understanding program.

The Global Understanding course is a cross-cultural program pioneered by East Carolina University (ECU) for maintaining peace and understanding in different areas of the world. Since 2005, Abou Bekr Belkaid University of Tlemcen (UABT) has contributed as a partner country. Every semester, many

students subscribe mostly to promote their learning of the English language, but also to be introduced to other people throughout the world.

It is considered that integrating ICT in the classroom provides possibilities for new styles of learning and cognitive approaches (see also Dede, 2009). Evidently, exploiting distance learning offers loads of educational opportunities for students. One of the goals of The Distance Learning Environment is to use technology to improve the quality of learning and attempt to boost efficiency and proficiency of the educational process. Further, this learning environment raises students' autonomy and engagement, being a "brand new" setting to them which is "rewiring" the students' brains (Nikolov and Nikolova, 2008).

Before every connection, the teacher instigates a forum on the UABT e-learn platform, where the students chat about their own culture and identify the essential points of the connected class. This allows them to be conscious of their own culture, and also train themselves to discuss the enquiries with their partners from other countries. Besides, Algerian students via the Global Understanding program are challenging themselves to develop their communicative competencies.

4.5.3 Making a Cross-Cultural Podcast

The utilization of podcasts has been expanded to a significant number of fields, such as, entertainment, advertising, tourism, library research and education (Lakhal, Khechine, & Pascot, 2007). When podcast content can comprise audio, video and image materials (Rossell-Aguilar, 2007), it may at times be utilized only with audio material and other times with video and media content as sometimes labelled "videocast".

When applied to education, psycholinguists have uncovered that not like reading and writing, listening is instinctual (Clark & Walsh, 2004). Brief podcasts can be effective for training students for class by focusing on their perspectives about the material (Chan & Lee, 2005). Chan, Lee, and McLoughlin (2006) have put forward best training suggestions for podcasts: reflect on a basic purpose;

make a short vigorous podcast collected of many voices instead of one monologue; and innovation. Thus, "…computers and computing offer profound opportunities to learn new things, old things in new ways and construct knowledge in ways that would be inaccessible without access to technology" (Rawsthorne. p, 2009).

The number of UABT students involved in contributing to the Global Understanding Course is ever rising. This program is s a "demystified window on the world." It allows UABT students not only to be acquainted with other cultures, but also to improve their knowledge of the English language in natural-like situations.

The use of ICT tools in education sets as a "bridge" since the majority of the students is already conditioned to Internet tools. Being engaged in classroom activities, students do no longer conceive their learning process as formal and authoritative, but rather conceive it as supporting an "edutainment" philosophy. Therefore, they make friends and get in touch with them even when the GU courses are done, whatever the setting they are in. So far, it also provides evidence that when the course is done; students keep on learning even without a tutor or any course conditions. They also become engaged to communicate in English with friends, and they are involving in significant interchanges of information outside of the classroom.

4.6 Strategic Planning for ICT in Education

The term 'strategy' has been drawn on in many contexts, veracities and with a great diversity of meanings. In the scope of education, it is frequently related to terms such as approach, model, technique, method (Gleason, L.et al; 11), cognitive activity (Gürsoy, E. 2010) and metacognition (Belet, D. & Guven, M. 2011 & Caliskan, M. & Sunbul, M. 2011). Despite of the broad range of terms connected to it, a number of writers use this term in the wide sense (Smith, A.; Douglas, C. & Cox, F. 2009). Within the range of the Learning Outcomes Project, the phrase 'teaching and evaluation strategy' denotes series of educational actions

or activities, drawing up the sources and social aspect of work planned so as to construct certain learning in students (Roldao, M. C. 2009).

The term strategy involves that a deliberate plan of action shall move the education towards the clear and explicit target of propping up the acquisition of the relevant curricular document. From this standpoint, and as set of the series of activities drawn round in a given strategy, it is significant to comprise strategies of assessment aimed at promoting the students' learning process (educational dimension) and ensuring that the outcomes are attained (summative dimension). Also in the background of the Learning Outcomes Project, the outlining of the teaching and assessment strategies is set within the context of the pedagogical autonomy of teachers in the way that systematize their teaching. Though, for the attempt to contribute to the edifice of a structure that gives teachers a foundation for a better-off questioning of today's curricular demands, it is essential to set up a number of guiding standards recognizable to all the areas.

Similarly, in terms of arrangement, the teaching and assessment strategies outlined by the diverse curricular sections featured in a prevalent organization including the drawing up of the following features: the outcomes focused on; the estimated learning/outcome objective(s); the overall strategy (including the arrangement of the activities that structure the strategy); estimated time; the assessment of the results (including the performance pointers, criteria and levels, in addition to the type of instruments drawn on and their description). Without wanting to thoroughly wrap all the instructive procedures that are appropriate to attain a particular outcome.

The objective of the teaching and assessment strategies is only to construct a temporary effective plan intended to reach a given outcome, which shall be suitable to follow an attitude of communication according to the needs of the learners' contexts. Regarding the distinguished nature of the learning, the use of the strategies will obviously rely on a number of factors such as the nature and specificities of the content to be worked up, the teaching and learning outlook, the

roles of the teacher and the students, on top of the resources accessible in a classroom environment.

Information and Communications Technology has become omnipresent in its use in contemporary life. It is useful for learning, teaching, communicating, and managing. As critical is the fact that it has developed into a pointer of improvement and progress. Thus, Information and Communication Technology becomes a virtual viaduct crossways the expanse of ground.

Integrating ICT in education reform, thus, does not only stand for an aptitudes to be obtained for its effectual deployment, but more significantly as instruments of learning, teaching and organization as well as a sign of development and improvement, and most crucially as a virtual viaduct connecting students in new teaching and learning process. Taken jointly ICTs aptitudes can be successfully enhanced to renew, improve the teaching and learning, rekindle fruitful prop for education and supply the infrastructure for local collaboration, cooperation and the provision of material to unparalleled levels.

The transformation that has occurred with ICTs is launching the knowledge society. Promising construction is now founded on knowledge and technological skill toned with originality and perceptiveness. Schools and universities are, hence, viewed as fundamental points in the knowledge network focus of district access that can border with the ICT infrastructure. As ICT materials are exploited in education institutions, they must provide the large areas in which they are established with regard to access and training in their utilization. In this respect, the pointed border lines in school and out-of-school will be clouded and made indistinct in sense.

The use of ICT attempts to promote, assist, improve and construct functional collaboration, cooperation and the provision of materials among students, educators and administrators in education throughout the exploit of Intranets and the Internet. The use ICT in the teaching and learning processes is, thus, required to enhance and adapt teaching and learning wherein students

become computer literate. At last, the uptake of ICTs is meant to perk up, modernize and make more proficient the organization of schools and Ministries of Education throughout education management information systems that are networked and linked vigorously.

4.7 Implications for Research Methodology

In the past, studies of teachers' use of technology focused mainly on the level of use and effectiveness of adoption with data taken from pre-defined inventories or behavioural checklists, such instruments yielded decontextualised accounts' of teachers' use of technology and individual's perspectives. However, this study draws on one theoretical framework and the utilisation of a contextual or mixed-methodology approach to draw on the strength of different types of data. Acknowledging that teacher cognition, especially teachers' beliefs, are implicit in nature and difficult to access and assess, the research methodology of this study was designed to be as flexible and strategic as possible to encourage teachers to reveal their real personal theories, not the ideal ones.

In this study, the understanding of teacher cognition is not limited to results from the survey questionnaire and the amalgam of semi-structured interviews which together provided in-depth and contextualised views of the cognition of teachers in university EFL context. Therefore, it is recommended that teachers' beliefs soundtrack instruments should be combined with personal interviews, and ideal conversations relating to classroom contexts and participating people in educational settings. Indirect inquiry, customised questions, and teaching prompts are suitable for encouraging teachers to uncover their views about how language teaching and technology should be incorporated in a particular context. Furthermore, it is also necessary for researchers of teacher cognition to put themselves in the field and keep contact with participating teachers as interested peers and learning teachers.

The research tools in this study were developed according to the research setting and participants. Using a questionnaire without meeting the participants in person may not give a holistic view of their classroom teaching, personal

philosophies, and contextual influences. For this reason, interviews were conducted at participants' workplace or in their "comfort zone" to ensure that they felt comfortable and unthreatened so that they were open to share their personal views.

A further methodological implication of this research is that questions about teachers' perspectives and practices should be asked with caution since the content is highly related to teachers' self-perception and professional identity. Researcher should be sensitive to participating teachers' personal values and non-judgmental approaches should be applied. Refraining from giving personal comments about participants' teaching approaches or comparing their practices to others during the interviews would be critical in such an approach.

A final related point is that while teacher researchers have numerous advantages as insiders in the enquiry, they also need to be aware of their own role in the research process, and how this may influence what they do or do not find. For example, it is necessary that the researcher explains to participating teachers' the research purposes and procedures to ensure that the data collection is used for understanding the nature of mediated-technology language teaching in Algerian EFL context, not for critiquing or evaluating their teaching use and underlying beliefs.

4.8 Drawbacks of Integration

Despite the beneficial use of ICTs into classroom teaching to perk up teachers' performance and students' learning, lots of problems exist in the integration process as follows:

4.8.1 Major Tools Changed by the Assisting One

Use of multimedia technology is an assisting tool to attain the planned teaching effect. However, if entirely reliant on, multimedia devices used in classroom instruction may make teachers limited to its use and cannot act upon the leading role in classroom practice. It is perceived that lots of tutors are dynamic and show enthusiasm to the use technology but not competent enough to control it

confidently. During the class, teachers are using the computer and students are directing their attention only towards the screen, and thus, there is no eye contact between students and teachers. The strategy of ICT integration in the process of teaching should preserve the essence of the traditional classroom instruction. Consequently, the concept of "creative education" is to be clearly understood that new instructive techniques are considered to be assisting tool and not a target (Abraham, J. 2004).

4.8.2 The Loss of Speaking Communication

The integration of multimedia technology with its audio, visual and textual effect fully meets the students' needs and interest, though, it has some serious shortcomings. It has been noticed that due to the use of multimedia technology, communication between teachers and students is lacking, teachers' voice is replaced by computer sound, and teachers' instruction by visual image and students have less opportunities for speaking communication. With the auspicious environment by the reciprocal communication between teachers and students vanishing away, and sound and image of multimedia influencing students' initiative to reflect and communicate, class becomes a course ware show and students rendered viewers rather than active participants in class activities (Durand, A. 2004).

4.8.3 The constraint of Students' Thinking Potential

The process of language teaching differs from science subjects, as language teaching does not necessitate exhibition by diverse steps; rather, the learning environment is developed through questions and answers between teachers and their students. Teachers provide real-time questions and lead students to think and foster their aptitudes to identify and resolve problems. Nevertheless, due to over exhibition and predetermined order, classroom instruction lacks real-time upshot and cannot provide feedback. It disregards focus and significance in teaching; it lacks also impetus to cultivate students' thinking, to trigger off their thinking, and to reinforce their aptitudes to think and resolve problems. Thus, the objective to

use multimedia technology is to raise students' thinking competencies (Ministry of Education, Commonwealth of Dominica, 2003).

4.8.4 Abstract Thinking substituted by conceivable Thinking

The Process of cognition gets through perceptual phase and rational phase. It refers also to process of learning. It is our anticipation that teaching makes students identify perspectives from perceptual identification to logical comprehension, and significantly shift from abstract thinking to conceivable thinking; it is, thus, the main objective in teaching. To enhance the students' perceptual thinking, the ICT technology makes content much more easily, and with its exceptional benefits, it can elucidate the focus in classroom instruction. If pictures and thoughts in students' brain were only displayed on the screen, their abstract thinking would be limited and rational thinking would disappear.

Now, the low level students' reading skill has turned into an interesting topic of investigation to study the effect of replacing textual words by sounds and pictures and handwriting by keyboard input. Overall, ICT as an assisting tool cannot change the leading role of teachers and it is part of the whole process of teaching. Moreover, it is not an automatic simulation of teaching; rather it incorporates the visual, textual exhibition with teaching practice to support the prearranged, automatic and permanent teaching project so that to improve the overall development of students' listening, speaking, reading and writing skills (Abraham.J, 2004).

4.9 Suggestions and Strategies for the Existing Problems

In practical teaching, it is improper to duplicate the textual material simply to the screen so that the teacher's position is ignored in order to ensure the function of, multimedia in teaching. It should be noted that:

4.9.1 Attractive courseware is not the main objective

It is shown through teachers' experiences that suitable introduction of multimedia technology to teaching can be a momentum in classroom instruction. That is, throughout multimedia assisting instruction, teachers still dominate the

classroom and take part in the leading role that the computer could never take their place. For example, the way through which teachers introduce their lessons and lead classroom communication with their students are extremely beneficial to enhance students' listening and speaking skills which the computer cannot do. For that reason, teachers' analysis shall not be neglected. For the moment, as a practical linguistic science, many languages should be spoken very frequently in class to boost the students' communicative skill, ICT, as a tool for assisting teaching, helps teachers in spite of its exceptional effect, so it is up to them whether to use ICTs.

4.9.2 The computer screen should not replace the blackboard

Some teachers use the computer screen as the blackboard. They have teaching plans, classroom activities, questions and answers into the computer and show them part by part, without noting anything on the blackboard or even the title of a lesson. It is recognized that teachers are expected to imitate situations based on instruction and pilot the students to employ ICT. In addition, traditional writing on blackboard is brief and teachers can modify and change it if required. Also, experienced teachers recognize well that a ideal courseware is an perfect plan in mind, and that in practice, they require to enrich the content on the blackboard and to raise questions by students.

4.9.3 Multimedia cannot replace student's thinking and engagement

At the moment, the majority multimedia courseware mostly includes image and animation of teaching instruments so that to bring about audio and visual effect, which vigorously exhibits the content of textual materials and assists the students thoroughly comprehend the texts. The problem is that when exhibiting of the content of textual materials courseware cannot substitute students' thinking or English communication within imitated condition.

When developing and exploiting the courseware, teachers need to motivate the students to think and converse more to be active participants in the classroom. Teachers do not have to overuse the courseware just to renovate features of classroom instruction. The role of multimedia assisting in classroom instruction

cannot be altered by other teaching materials, which does not implies that multimedia can alter any other structure of material. Some teachers are inclined to completely count on multimedia based instruction.

While, it should be perceived that even if multimedia has its exceptional benefits in teaching, the features functions of other varieties of instructional materials remain incomparable. For instance, the recorder is a very useful broadcasting listening material. Hence, teachers are expected to select adequate media and tools based on the needs of teaching and introduce ICT materials with traditional one and fully execute their advantages, rather than only in collection of trendy techniques.

4.9.4 Traditional teaching tools and devices should not be disregarded

The role of multimedia assisting in teaching cannot be substituted by any other materials, which does not imply that multimedia can replace any other form of instrument. Some teachers tend to entirely depend on multimedia teaching. While, it should be noticed that although multimedia has its unique advantages in teaching, the characteristics functions of other forms of teaching instruments remain incomparable. For example, the recorder is a useful broadcasting listening material. So teachers are expected to select adequate media and instrument based on the need of teaching and introduce ICT instruments with traditional one and fully execute their advantages, rather than only in search for trendy method.

4.9.5 ICTs should not be overused

Some teachers may adopt the inadequate outlook that they would entirely integrate multimedia technology in their instruction. It is also considered that the more multimedia technology is used, the more students get engaged in class contribution, the more simply the material is accessible to the students. In practice, the more teachers introduce ICT in instruction, the less students benefit from the language instruments. For instance, it is out of reach to efficiently develop the students' oral skills in a classroom session via the use of podcasts. In fact, if multimedia technology would be accurately integrated in English language

teaching for example, the students could be able to benefit from English speaking and listening materials and improve their overall competencies, which is the target for us to integrate multimedia technology in classroom instruction.

This paves the way to efficient training of students' listening, speaking, reading and writing skills, makes teachers' instructions more effective, assists students acquire essential knowledge, enhances their communicative skills in English and provides basic knowledge for other languages. "Ideally, the purpose of both the traditional and computer-assisted cooperative language leaning classrooms is to provide a space in which the facilitation of learning, and learning itself, can take place" (Creemers, 2002,p. 76).

The use of ICT has the prospective to assign chances for learning mostly across the teaching process. It is noticed that institutions of teacher education are no more firmly imposing ICT. Measures are to be considered to perk up the quality of teaching, to improve the outcomes of learning and to explore new opportunities for professional development of the prospect teachers. To conclude, some suggestion on the basis of this research findings are made as follows: Institutions of teacher education should be supported with financial and human sources with training for effective integration of ICTs. It is also essential to widen a thorough comprehension of future learning demands and future settings for ICT competencies.

Constructive environment must be there to give a chance for all stakeholders to take part in the information society. Rather than focussing on cost, attempts should be taken to support effective ICT integration. Development and training are still required to supply effective learning content and learning technologies. Finally, it is considered that integrating ICTs can greatly support students' learning and practical linguistic proficiencies, which is beneficial and functional to achieve effective results of teaching and learning development. Taking into account some disturbing factors, multimedia technology can be explored successfully in classrooms with appropriate computer knowledge from

the side of teachers, surmounting financial problems in providing the infrastructure and not permitting the teachers to be technophobes.

4.10 Limitations of the Study

There are some limitations to the study. First, due to the restricted sample these findings cannot be generalised to whole technology use in higher education. Second, this investigation is based on a survey and interviews without using classroom observations due to time limitations. If further observation methods were used and more time given to extensive in-depth interviews, the results would yield richer information about the relevance of teachers' cognition and perspectives about their practice in technology –mediated teaching and the effects of instruction on students' language learning throughout the language curriculum. Third, the collection of data from interviews was confined to the teachers who contacted the researcher and voluntarily became participants because of their interest in the technology integration in higher education EFL context.

If more teachers had been available to share classroom experiences in using web-based technology in EFL teaching for example, more comprehensive results would have emerged to capture more fully technology instruction in higher education EFL context. However, since the research interest was to investigate teachers who had an interest in and experience of teaching with technology, it may be supposed that this group is well presented among those with the motivation to volunteer. As the research design and instruments were customised to fit the Algerian university EFL context in order to elicit in-depth data about personal and contextualised beliefs and practices in technology, they are not automatically transferable to other contexts.

4.11 Recommendations for Further Research

Given the limitations of a small sample size to only three Algerian universities, it would now be valuable to conduct similar research with a larger number of participants from different universities around the country. It would also be worthwhile to conduct longitudinal studies and case studies to extend the

investigation into teachers' development and changes in technology beliefs and practices in particular settings. As this study emphasised the significance of personal and contextual elements in teaching with technology, it is also important to understand the background and attitudes of teachers and how they interact with the environmental influences of their teaching context.

It might be of interest for researchers to conduct studies in different educational settings. It would also be interesting to place emphasise on students' perceptions towards technology-mediated language instruction as well as the effects of online language learning environment on students' learning outcomes. Other factors, such as teachers' confidence and competence in using technology also play a role in technology integration and these could be explored in relation to teacher cognition.

In light of the findings of this study, the following recommendations are offered to the decision makers and teachers in Algerian universities: 1) educational institutions should set up/develop a central unit to guide data and projects about ICT integration. Setting up this unit would aid in providing instructors with data about the accessibility of ICTs, instructional training, and support required to put into practice the changes in teaching methodology essential to incorporate ICTs. This unit should also provide adequate and consistent technical support for instructors and students. 2) Training programs should be carried out all through the academic year. These programs should be supplied by the central unit and intended to provide instructors with "hand-on" workshops and seminars on implementing ICTs. These training sessions should comprise not only workshops and tutorials but also partnership between experienced and non-experienced instructors. Thus, institutions should support experienced teachers to show to their peers how they are efficiently integrating ICTs in instruction on the basis of their attitude and pedagogy.

This can be done throughout face-to-face showcases or conferences wherein teachers are given the chance to show inventive learning-centered pedagogies that they had successfully integrated. 3) Training sessions should imply diverse topics

such as course development, best practices, online interaction, technology training, and the most contemporary literature and research on implementing ICTs. 4) Though wide-ranging research has been done in different countries (such as USA and Russia) on teachers' perceptions of integrating ICTs, very little is obtainable on teachers in Algerian institutions. Because lots of factors can affect such integration, further research should be carried out to involve more teachers to obtain more conclusive results. This would not only stand up for the findings of this study but also broaden the knowledge based on hand for teachers.

4.12 Conclusion

Now certainly, it runs to be vital and essential to come up with a thoroughgoing initiation of the concept of ICT integration in EFL context to improve better quality of English language teaching and learning. It is evidently basic; though, to place a focus on the credible reasons that propel teachers of different ranks to review their visions, attitudes and conceptions about their teaching instructional strategies which they have adopted all through their career and which have not proved to be those of contentment with reference to the students' level of aptitudes mastery. Owing to this undesired prevailing and recurrent condition, it is valuable to validate the concept of effective integration of ICT in the teachers' minds in order to get them engaged in the process and request them to shift from a top down approach to the planning, implementation, and evaluation of teaching initiatives, and to take a new way of teaching approach.

Within this chapter, we tried to provide some guiding perceptions for future research that underline a bottom up process whereby, teachers work on and enhance knowledge of their subject, improve their competencies in teaching and develop themselves throughout their career. As an exceptional blaze among the recommendations in this chapter, is the strategic planning for ICT in education which, expectantly, to be put into practice with particular professional development courses.

General Conclusion

With the assumption that what teachers think has a great impact on classroom instruction and students' learning processes, this study aimed to investigate teachers' perspectives, cognition and attitudes towards the use of ICTs in EFL teaching and learning environments. Using multiple approaches to elicit teachers' beliefs and personal perspectives about their practices revealed that technology use in EFL teaching in highly personalized and context-situated. In other words, it is not only teachers' personal knowledge, skills, or confidence in technology that facilitate the integration.

At the survey stage, it was found that participating university EFL teachers supported the use of Computer and Information Technology as a tool for: providing students with more learning resources, enhancing instructional activities for submitting assignments, and facilitating classroom communication between teachers and students. In fact, theses teachers' beliefs about technology- enhanced teaching may not appear as distinct from how English language instruction is perceived and currently enacted without the use of technology. They thought technology should be used in a way that corresponds with the existing curriculum and their beliefs about EFL instruction in particular settings. Therefore, they are inclined to accept a form of technology-mediated instruction that helps them achieve their high prioritised teaching goals, which are influenced by their own instructional beliefs and students' needs and backgrounds.

When interviews were conducted, teachers' personal accounts revealed their attitudes and beliefs which are actually reflecting particular conceptions about EFL teaching and learning; that is, teachers are responsible to provide students with more learning resources, language models and opportunities to practise the language skills that are necessary for their academic and future career requirements.

Although it is perceived among these teachers that technology has great potential in promoting communicative language learning, technology use in this context may not focus on these areas since teachers know that there is something more important in the classroom that needs to be addressed. This mismatch between actual instructional technology activities and the apparent potential of technology use to enhance instruction was further influenced by the lack of facilities and students' low language ability. These are major barriers to

technology integration which may also have hindered them from maximizing the capability of ICT in EFL instruction.

When specifically looking into the practices and perspectives of the teachers who tend to integrate technology in specific contexts, it was found that each one combined his or her own understanding about the usefulness of technology and local language teaching practices to form personal principals or maxims which guided the technology-enhanced language instruction. These technology-using teacher maxims are situated and unique because of each individual teacher's classroom context and personal perceptions of what benefits are brought to their language teaching and students' learning. Although teachers use technology in different context and receive different kinds of support in terms of facilities, their positive views on technology and awareness of importance of technology in language instruction appear as the strongest affordance of meaningful integration despite the shortcomings they face such as limited network computers.

Therefore, it comes to light that technology-mediated instruction is not just a disposition or a set of strategies, but a result of insightful perceptions and critical thinking that investigates and evaluates the ongoing practice of teaching and learning within a particular environment. Studying teachers' attitudes has unfolded the complexities of technology-mediated language teaching which are beyond asking students to use a particular tool to do their language assignments. Instead, effective technology use occurs as teachers know what they do in their classrooms, what their students' problems and needs are, and what 'works' for them and their students. Then, they decide to teach with technology or use it as a tool adding value to the learning processes within a specific learning environment. In this way, the unique of particular tools are used to enhance what is considered good teaching. As Young and Bush (2004, p.8) state, " the power of pedagogy must drive the technology being implemented, so that instruction, skills, content, or literacy is enhanced in some meaningful way" .

Since technology use in Algerian university EFL instruction is mediated by teachers' beliefs about what constitutes effective language teaching and how technology and information access can enhance the role of the teacher in classrooms, at this point, providing teachers with the latest educational technology is no longer what is required to encourage technology-mediated instruction. Rather, teachers should be encouraged to think about the

unique capacities of each tool and how using that tool in the classroom could facilitate students' learning and achievement of current learning goals. It is now crucial to urge EFL teachers to critically evaluate the potential of instructional technology, and the value it would bring, and then design instructional methods and tasks that enhance language learning for students of the digital age.

Finally, an important aim of this research was to address the importance of understanding the perceptions of EFL teachers. Although, including technology in language teaching is not mandatory in most Algerian university departments, EFL teachers cannot escape the need to teach with technology in the near future given the increasing presence and demands of online communication and electronic literacy. To ensure successful technology integration, it is highly important to tap teachers' cognition and perceptions about technology and their personal beliefs about language learning and teaching in particular contexts. As teachers play a major role in any kind of education reform and innovation, their perspectives, understanding, and beliefs should not be left unexplored. Teachers should be encouraged to explore and understand the interconnectedness of their own teaching principles. Once these are made clear, teachers will have a more informed basis for the integration of technology into their daily classrooms.

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Appendices

APPENDIX A

Dear teacher,

In the light of preparing a doctorate thesis entitled: ***Integrating ICT in Algerian EFL Context: Spotlight of Teachers' Perceptions and Outlooks,*** under the supervision of Dr Noureddine MOHADJER, we will be so grateful if you could answer, and in all objectivity, for the present questionnaire.

Section1: Please mark one choice in the suitable row

Part one:

1- What is your gender?
- Male
- Female

2- To which age group do you belong?
- Less than 25
- Between25-34
- between 34-45
- between 45- 54
- between 55- 65
- 65 and over

3- For how long have been teaching English language?
- between 1-5 years
- between 5-10 years
- between 10-15 years
- between 15-20 years
- more than 20 years

5- Have you Taken ICT Related Courses (ICTRC)?
- Yes
- No

6- Have you taken in-service training about ICT?
- Yes
- No

Section 2: Please mark one choice in each row

1. How would the integration of ICTs support and enhance the teaching learning process?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Enriching teaching/learning environment.					
Creating an effective learning environment.					
Providing feedback.					
Increasing student achievement.					
Providing 'authentic' experiences.					
Providing opportunities that traditional instruction cannot provide.					
Replacing the traditional teaching aids by new ICT tools.					
Providing edutainment in classroom environment.					
Supporting teachers to plan in-class activities.					
Supporting teachers to evaluate in-class activities.					
Using a range of assessment methods.					
Maintaining appropriate, sustained ICT professional development for teachers and students.					
Managing learning.					
Extending beyond the lesson.					
Managing time and pace well					
Revising the instructional strategies to be used.					
Extending a vision for the development and integration of ICT across the curriculum.					
Helping teachers implementing in class activities.					
Providing staff with personal access to ICT.					

2. How competent do university teachers consider themselves in using Information Communication Technologies (ICTs) in their classroom instruction?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Using the Internet - World Wide Web (WWW)					
Searching information online					
Sending and receiving e-mail.					
Using word processors for personal and institutional purposes.					
Creating a multimedia presentation					
Using presentation software for personal and institutional purposes					
Using hypermedia and multimedia tool to support instruction					
Evaluation creating and sharing online learning resources with colleagues and students locally and globally					
Collaborating online with students from other classes					
Explore , understand and utilize ICT in teaching and communication					
Creating a personal webpage					
Creating a blog					
Using forums					
Usingvideo conference programs					
Establishing local and global learning communities					

Developing student online learning spaces					

3. What are the incentives behind integrating ICT in classroom instruction?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Use of ICT helps to explore, understand and utilise ICT in teaching, and learning.					
Use of ICT helps to maintain flexible delivery of professional learning through face-to-face and online activities					
Use of ICT helps to employ ICT Coaches to assist the integration of ICT in the classroom.					
Use of ICT helps to develop online learning spaces					
Use of ICT helps to provide online compulsory courses for students.					

4. How effective for the learning process would be the integration of ICT in teaching and learning?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Cultivating Students' Interest in Study					
Promoting Students' Communication Capacity					
Enlarging Students' Knowledge to Gain an Insightful Understanding to Western Culture					
Improving Teaching Effect					
Improving Interaction Between Teacher and Student					
Creating a Context for Language teaching					
Providing Flexibility to Course Content					

5. What are the innovations that ICT has brought in teaching-learning process in the Algerian University curricula?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Facilitating communication through the social media and social networking.					
Introducing new method of learning called E-learning.					
Exposing teachers to modern world by searching, reading and connecting with people					
Providing easy and quick access to information stored up in the computers.					
Improving quality of teaching					
Enabling teachers to update teaching-learning materials.					
Helping teachers to update teaching-learning materials through reading and learning further about the most updated resources.					
Decreasing burden of keeping hardcopy					

Allowing teachers to enrol the students online.					
Facilitating communication through the social media and social networking.					

6. What are the strategies adopted to facilitate ICT integration?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Vision and Leadership.					
Strategic planning.					
Lifelong learning.					
Monitoring progress.					
Digital literacy.					
Access and equity.					
Innovation strategy.					
Research and development.					
Network building.					
Models and Exemplars.					
Community Strategies.					
Transforming learning.					
Partnership.					

7. What are the perceived obstacles and challenges to integrating ICTs in instruction?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Lack of in-service training					
lack of access to ICT equipment					
Long standing pedagogical practices.					
No perception of benefits.					
Technical problems					
Lack of technical Support.					
Lack of professional development on how to integrate technology.					
Lack of teacher confidence					
Teachers' computer anxiety.					
Lack of teacher ICT competencies.					
Resistance to change & negative attitudes.					
Impact of public examinations.					
Teacher workload.					
Lack of time during a class period					
Lack of in-service training					
lack of access to ICT equipment					
Long standing pedagogical practices.					
No perception of benefits.					
Technical problems					
Lack of technical Support.					

Lack of professional development on how to integrate technology					
Lack of teacher confidence					
Teachers' computer anxiety.					
Lack of teacher ICT competencies.					
Resistance to change & negative attitudes.					
Impact of public examinations.					

8.What types of technical and instructional support are available to teachers for integrating ICTs in their instruction?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Adopt a common set of standards for ICT systems an issues.					
Attract and retain teachers with ICT skills and aptitudes within the education system.					
Ensure suitability/readiness of school environment/climate for incorporation of ICT's.					
Provide appropriate training to teachers before they attempt to introduce the use of ICT's in the classroom.					
Provide opportunities/support for higher level training for educators in advanced areas of ICT.					
Facilitate equitable access to ICT for all students.					
Integrate ICT's into the curriculum.					
Ensure an effective maintenance and technical support mechanism.					
Encourage and support research on and evaluation of the impact of ICT in the education system					

9. What are the possible enablers for teachers to overcome current ICT integration problems?

	Strongly Agree	**Agree**	**Neutral**	**Disagree Strongly**	**Disagree**
Ensuring an effective technical support mechanism.					
Working on self professional development					
Providing in-service training					
Updating knowledge and skills.					
Experiencing the potential benefits of integrating ICT					

NP. If you would you like to provide more information about your personal or professional experience regarding the use of ICT in your classroom instruction, you are requested to leave your personal contacts(telephone or e-mail) so that to arrange a meeting for an interview .

Thank You for Your Collaboration

APPENDIX B

Teacher's Interview

Dear teacher,

This interview attempts to collate data about the integration of ICT in Algerian EFL context so that to underline teachers' perceptions and outlooks about the use of ICT and its effect upon teachers' performance and students' learning. You are hence kindly requested to answer the following questions sincerely as they are momentous for the authenticity of this research.

****

1. For how long have you been teaching English?
2. Do you use ICT in your instruction?
3. What types of software do you use most frequently with your students in the classroom?
4. Have you Taken ICT Related Courses (ICTRC)?
5. Have you taken in-service training about ICT?
6. If you are asked to reveal your perceptions about integrating ICT in EFL instruction, what can you say?
7. How could the integration of ICT affect your classroom practices?
8. What would support ICT integration in EFL classroom?
9. Have you ever encounter difficulties when teaching with ICT?
10. What are the possible challenges to overcome those difficulties?
11. What can you suggest to overcome the hampers of integrating ICT**?**

Thank you for your Collaboration

الملخص:

الهدف الرئيسي من هذه الدراسة هو الحصول على بيانات تجريبية حول الاستخدام الحالي لتكنولوجيا المعلومات والاتصالات من قبل المعلمين والطلاب في سياق التعليم العالي الجزائري ، وبالتالي التوصل إلى أكثر الاستراتيجيات كفاءة لدمج هذه التكنولوجيا. تكشف النتائج أن المشاركين نقلوا بشكل عام تصورات إيجابية عن تطبيق تكنولوجيا المعلومات والاتصالات في عملية التعليم التدريسية. علاوة على ذلك ، اعتبر العديد من المشاركين أنفسهم مؤهلين في استخدام تكنولوجيا المعلومات والاتصالات ؛ ومع ذلك ، فإن قدراتهم ليست متقدمة. وأظهرت الدراسة أيضًا أن نقص التدريب أثناء الخدمة حول تكنولوجيا المعلومات والاتصالات، ونقص الدعم الفني، ونقص كفاءات تكنولوجيا المعلومات والاتصالات ونقص ثقة المعلمين هي العقبات الرئيسية أمام تطبيق تكنولوجيا المعلومات والاتصالات. بناءًا على ذلك تم تقديم بعض التوصيات العامة والاقتراحات العملية للتغلب على أوجه النقص.

الكلمات المفتاحية:
تكنولوجيا المعلومات والاتصالات (ICT)، نتائج التعلم، ملاحظات الأساتذة، الإنجازات، العوائق، التحديات.

Résumé

L'objectif principal de cette étude est d'obtenir des données expérimentales sur l'utilisation actuelle des TIC par les enseignants et les étudiants dans l'enseignement supérieur algérien, et donc de proposer les stratégies les plus efficaces pour intégrer cette technologie. Les résultats révèlent que, dans l'ensemble, les participants ont exprimé une perception positive de la mise en œuvre des TIC dans le processus d'apprentissage. En outre, de nombreux participants se voient compétents pour utiliser les TIC. Cependant, leurs aptitudes ne sont pas avancées. L'étude a également montré que le manque de formation en cours d'emploi sur les TIC, le manque de soutien technique, le manque de compétences en TIC et le manque de confiance des enseignants sont les principaux obstacles à la mise en œuvre des TIC. En réponse à cela, certaines recommandations générales et autres suggestions pratiques ont été formulées en conséquence pour pallier ces insuffisances.

Mots clés:
TIC, nouveautés technologiques, perceptions des enseignants, impact des TIC sur les pratiques en classe.

Abstract

The main objective of this study is to get experiential data on the current use of ICT by teachers and students at the Algerian higher education context, and therefore, to come up with the most efficient strategies for integrating this technology. The findings reveal that, overall, participants held positive perceptions of implementing ICT in the teaching learning process. Moreover, many participants considered themselves competent in using ICT; however, their aptitudes are not advanced. The study also showed that lack of in-service training about ICT, lack of technical support, lack of ICT competencies and lack of teacher confidence are the major obstacles for implementing ICT. In response to this, some general recommendations and other practical suggestions have been accordingly made to surmount such inadequacies.

Key Words:
ICT, Technological novelties, teachers' perceptions, the impact of ICT on classroom practices.

PEOPLE'S DEMOCRATIC REPUBLIC OF ALGERIA
MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH
UNIVERSITY OF TLEMCEN
FACULTY OF LETTERS AND FOREIGN LANGUAGES
DEPARTMENT OF ENGLISH

SUMMARY OF THE THESIS

Dissertation Submitted to the Department of English in Candidacy for the Degree of "Doctorate" in Language Studies.

Presented by:
Ms. BENMANSOUR Souheyla

Supervised by:
Dr. MOUHADJAR Noureddine

Academic Year: 2018-2019

In a globalised world, education is pivotal and the role of teachers and learners to be technologically adept remains critical in the digital age. Technology is leading lots of aspects of human life and if incorporated appropriately can only further enhance the teaching and learning process and uphold the academic experience of both teachers and learners. It is essential to explore whether education technology known as Information Communication technology (ICT) affects the teaching and learning process in a positive way as compared to traditional learning. The present study places focus on how ICT Technology, throughout teaching and learning, can assure that the learners have a most favourable learning experience. This research discusses the integration of ICTs in the teaching and learning process, so as to investigate and make a major contribution to the current literature. The present research is, then, fuelled by the subsequent research questions:

- How effective for successful learning process for university EFL students is the integration of Information Communication Technology in classroom instruction?
- How academically appropriate is the integration of ICT for `reconceptualising' students' learning process?
- How can the perceived obstacles be challenged for appropriate integration of ICT?
-

The main goal of this research is to explore the use of ICT within education environments and its effect on teaching and learning process.

The subsequent secondary goals are specified so as to attain the primary goal:

- To carry out a literature review which will help in specifying what ICT requires and its learning methods and strategies
- To review existing experiential studies on the subject

- To sum up, draw conclusions and proffer recommendations founded on the experiential results.

This study will discuss and check following research hypotheses:

- Integrating ICT in classroom instruction would change and challenge the traditional learning process.

- Effective learning experience could be attained through the thorough use of ICT.

- Teachers' lack of training and lack of motivation and will to change are the main obstacles that could prevent successful integration of ICT.

The object of this study is to investigate the situation in which ICT is being used in an EFL learning environment. The present study shed lights on the level to which teachers are using ICT and the impacts of integrating ICT on students learning experience. This research attempts also to place focus on the main obstacles and challenges that teachers may encounter when using ICT. The integration of ICT and its impacts on teaching and learning will be discussed throughout four interrelated chapters.

Chapter one aims at providing a theoretical overview on the integration of ICT in EFL context, with a precise focus on teachers' perspectives since their vision and readiness play a major role in the process of adopting this innovation in the teaching learning approaches and strategies. Furthermore, it

attempts to draw a clear picture of the ICT learning outcomes and the importance of ICT in education.

Moreover, this chapter illustrates the challenges and barriers to integrating ICT in education, the main constraints that impede teachers' engagement and willingness to use ICT prevent the use of a technology of education which could be successful and effective for both teaching and learning process. On another stand, it also states the strategic action for integrating ICT in order to overcome the barriers that teachers may encounter while integrating ICT.

Chapter two deals, thus, with the mixed method approach based on the data collected throughout quantitative and qualitative procedures. This practical phase is acted upon through different analytic instruments. First a questionnaire containing of six questions is administered to teachers of the department of English. The second tool is the interview carried out with the three teachers who revealed in the questionnaire their willingness to do the interview. As evidence shows, these procedures revealed a great number of findings about teachers' perspectives regarding the use of ICTs in classroom instruction, the outcomes of integrating ICTs on the teaching experience of teachers, and also the perceived obstacles and challenges that teachers meet when attempting to integrate ICTs. Chapter three, so, is devoted to analysing data that were collected through the research instruments mentioned above.

Chapter four, however, provides a sequence s of recommendations with a particular emphasis on strategies as an attempt for effective integration of ICT be undertaken by teachers every now and then all along their teaching vocation so that to improve one's teaching practices. One more relatively crucial point is about the drawbacks of integrating ICT. It is essential to mention that the endeavour of this study is not only to use technology but to use effective approach of teaching and learning with the use of technology so that to improve teachers' performance and students' learning outcomes.

To this outlook, educationalists, tutors and teacher trainers should take into consideration the concept of teachers' professional development and attempt to set off the innovative idea of teacher education development in training workshops. Only in this way, we can pave the way to a pedagogic change. More significantly, the process of English Language Teaching will achieve promising upshots.

With the assumption that what teachers think has a great impact on classroom instruction and students' learning processes, this study aimed to investigate teachers' perspectives, cognition and attitudes towards the use of ICTs in EFL teaching and learning environments. Using multiple approaches to elicit teachers' beliefs and personal perspectives about their practices revealed that technology use in EFL teaching in highly personalized and context-situated. In other words, it is not only teachers' personal knowledge, skills, or confidence in technology that facilitate the integration.

At the survey stage, it was found that participating university EFL teachers supported the use of computer and Information Technology as a tool for: providing students with more learning resources, enhancing instructional activities for submitting assignments, and facilitating classroom communication between teachers and students. In fact, theses teachers' beliefs about technology- enhanced teaching may not appear as distinct from how English language instruction is perceived and currently enacted without the use of technology. They thought technology should be used in a way that corresponds with the existing curriculum and their beliefs about EFL instruction in particular settings. Therefore, they are inclined to accept a form of technology-mediated instruction that helps them achieve their high prioritised teaching goals, which are influenced by their own instructional beliefs and students' needs and backgrounds.

When interviews were conducted, teachers' personal accounts revealed their attitudes and beliefs which are actually reflecting particular conceptions about EFL teaching and learning; that is, teachers are responsible to provide students with more learning resources, language models and opportunities to practise the language skills that are necessary for their academic and future career requirements.

Although it is perceived among these teachers that technology has great potential in promoting communicative language learning, technology use in this context may not focus on these areas since teachers know that there is something more important in the classroom that needs to be addressed. This mismatch between actual instructional technology activities and the apparent potential of technology use to enhance instruction was further influenced by the lack of facilities and students' low language ability. These are major barriers to technology integration which may also have hindered them from maximizing the capability of ICT in EFL instruction.

When specifically looking into the practices and perspectives of the teachers who tend to integrate technology in specific contexts, it was found that each one combined his or her own understanding about the usefulness of technology and local language teaching practices to form personal principals or maxims which guided the technology-enhanced language instruction. These technology-using teacher maxims are situated and unique because of each individual teacher's classroom context and personal perceptions of what benefits are brought to their language teaching and students' learning. Although teachers use technology in different context and receive different kinds of support in terms of facilities, their positive views on technology and awareness of importance of technology in language instruction appear as the

strongest affordance of meaningful integration despite the shortcomings they face such as limited network computers.

Therefore, it comes to light that technology-mediated instruction is not just a disposition or a set of strategies, but a result of insightful perceptions and critical thinking that investigates and evaluates the ongoing practice of teaching and learning within a particular environment. Studying teachers' attitudes has unfolded the complexities of technology-mediated language teaching which are beyond asking students to use a particular tool to do their language assignments. Instead, effective technology use occurs as teachers know what they do in their classrooms, what their students' problems and needs are, and what 'works' for them and their students. Then, they decide to teach with technology or use it as a tool adding value to the learning processes within a specific learning environment. In this way, the unique of particular tools are used to enhance what is considered good teaching. As Young and Bush (2004, p.8) state, " the power of pedagogy must drive the technology being implemented, so that instruction, skills, content, or literacy is enhanced in some meaningful way" .

Since technology use in Algerian university EFL instruction is mediated by teachers' beliefs about what constitutes effective language teaching and how technology and information access can enhance the role of the teacher in classrooms, at this point, providing teachers with the latest educational technology is no longer what is required to encourage technology-mediated instruction. Rather, teachers should be encouraged to think about the unique capacities of each tool and how using that tool in the classroom could facilitate students' learning and achievement of current learning goals. It is now crucial to urge EFL teachers to critically evaluate the potential of instructional technology, and the value it

would bring, and then design instructional methods and tasks that enhance language learning for students of the digital age.

With the assumption that what teachers think has a great impact on classroom instruction and students' learning processes, this study aimed to investigate teachers' perspectives, cognition and attitudes towards the use of ICTs in EFL teaching and learning environments. Using multiple approaches to elicit teachers' beliefs and personal perspectives about their practices revealed that technology use in EFL teaching in highly personalized and context-situated. In other words, it is not only teachers' personal knowledge, skills, or confidence in technology that facilitate the integration.

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Finally, an important aim of this research was to address the importance of understanding the perceptions of EFL teachers. Although, including

technology in language teaching is not mandatory in most Algerian university departments, EFL teachers cannot escape the need to teach with technology in the near future given the increasing presence and demands of online communication and electronic literacy. To ensure successful technology integration, it is highly important to tap teachers' cognition and perceptions about technology and their personal beliefs about language learning and teaching in particular contexts. As teachers play a major role in any kind of education reform and innovation, their perspectives, understanding, and beliefs should not be left unexplored. Teachers should be encouraged to explore and understand the interconnectedness of their own teaching principles. Once these are made clear, teachers will have a more informed basis for the integration of technology into their daily classrooms.

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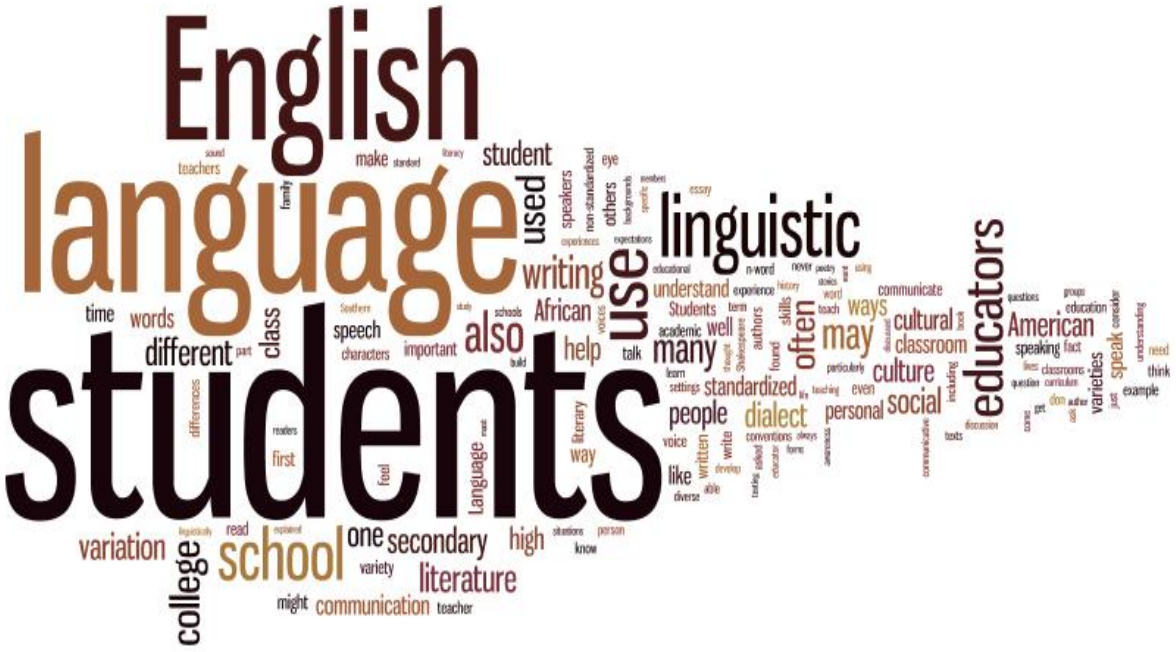

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INTEGRATING ICT IN CURRICULUM: MAIN ACHIEVEMENTS AND CHALLENGES

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ABSTRACT

Since the onset of this century, education has encountered critical challenges. In the information age, how to give elevated quality education and training has turned out to be a fundamental query to be addressed for those who require education and can gain from it in the most cost-effective approach. Educational systems have endeavoured to surmount the challenges by adopting new approaches. Information and communication technologies (ICT) embody a new approach for developing the distribution of information and aiding to face these challenges. The major objective of this study is to get empirical data on the current use of ICT by teachers and students to come up with strategies and action plans for integrating ICTs in the Algerian higher educational system. With a prior concern to the implementation of ICT at school and classroom levels, the study addresses the following questions: *How effective for EFL learning process is the integration of ICT in classroom instruction? How academically appropriate is the integration of ICT for `reconceptualising' students' learning process? How can the perceived obstacles be challenged for appropriate integration of ICT?* The findings revealed that participating university teachers supported the use of ICTs as a tool for providing students with more learning resources, enhancing instructional activities for submitting assignments, and facilitating classroom communication between teachers and students. The findings disclosed also that participant teachers believed that lack of training, long standing pedagogical approaches and no perception of benefits are the major obstacles that challenge successful use of ICTs. Because teachers play a major role in any type of education reform and innovation, their perspectives and beliefs should not be left uncharted. Once these are made clear, teachers will get prepared to integrate ICT into their instructions.

Keywords: ICT, teachers' perceptions, learning outcomes, barriers, achievement and challenges.

INTRODUCTION

The use of ICT is generating main distinctions in the learning of students and teaching approaches. Educational institutions in the Western World empowered a lot for ICT infrastructures above the last 20 years, and students draw on computers more frequently and for a much huge variety of applications (Volman, 2005). A number of studies disclosed that students using ICT abilities mostly reveal higher learning improvements than those who do not use it. Moreover, the use of ICTs in education is also a turning point in the learning approaches. In fact, there is a prevalent conception that the integration of ICTs in education contributes to a more constructivist learning and an improvement in activity and greater engagement of students (Albirini, 2006). It enhances the role of the teacher to endorsing, encouraging, and training students more willingly than merely passing on knowledge. The ongoing advance in using computers shifts from learning about computers, to learning computers, and finally to learning with computers (Volman, 2005). Conversely, teachers' unwillingness to adopt innovations must be perceived within the backdrop of existing technology and promises. Evidently, a diversity of factors still consider the ICT in the syllabus problematic (Watson, 2001). Because of this, the effect of ICT did not bring ground-breaking changes in education. For example, the National ICT survey in the Netherlands reveals that the majority of primary-school students use computers less than once a week and there are still a lot of secondary

school teachers who do not use ICT in any way (Alhawiti, 2013). Most frequently, they draw on computers for drill-and-practice and word processing.

REVIEW OF LITERATURE

In latest years , there has been a rising interest to recognize how computers and internet can best be used to perk up success and effectiveness of education at all levels and in both formal and non-formal learning environments. Since there is a change of theories enlightening learning processes, ICTs become a prop for learning activities. Voogt's (2003) depiction on the foremost roles, defined ICTs as a subject for study, a feature of a discipline or a vocation, and a means of instruction. As a means of instruction, ICTs suit to fulfill and carry out the emerging pedagogy of constructivism (Voogt ,2003). Furthermore, Voogt (2003) distinguished between traditional learning environment and constructivist approaches. The former deems learning as conduction of knowledge to students, which is the one and only undertaking of the teacher. In contrast, the constructivist approach deems learning as genuine and learner centered. ICT is a terrific aid in the constructivist approach, where one can design virtual and personal learning environments to students. ICTs are having impacts on instructive approaches in the classrooms. Their encouragement to shifts in teaching practices, school innovation, and community services is significant.

With the assumption that what teachers think has a great impact on classroom instruction and students' learning processes, this study aimed to discover what teachers perceive, believe, and think about technology in EFL teaching in the Algerian university. Technology in this setting refers to the use of a range of computer and Internet programs and applications that are available in English language department at Tlemcen university. Using multiple approaches to elicit teachers' beliefs and personal perspectives about their practices revealed that technology use in EFL teaching in highly personalized and context-situated. In other words, it is not only teachers' personal knowledge, skills, or confidence in technology that facilitate the integration.

The integration of ICT is making major distinctions in the learning of students and teaching approaches. In the western world, educational institutions invested in ICT infrastructures over the last 20 years, and students use computers more frequently and for an infinite variety of applications (Volman, 2005). In academic framework, the use of computers attempts to support student language learning; the notion is known as Computer Assisted Language Learning (CALL). Computer Assisted Language Learning can be considered as "the search for and study of applications of the computer in language teaching and learning" (Lim, 2003.p, 1).CALL is mostly deemed as the critical acronym to denote studies related to second language and computer technology.

In line with studies which view motivation as an essential factor in language learning, CALL practitioner have been to claim that computer environments themselves can enthuse many learners. Learners are inspired while learning with computer as they are less threatened and thus take more risks and are more spontaneous (Becker, 2001).

The process of implementing ICTs in the teaching learning process seeks both to comprise the various competencies of language learning and explore the technology more completely into language teaching (Aydın, 2007). For this enterprise, ICT materials (for example computers, Interactive White Boards (IWBs), multimedia software, network processes ect) proffer a diversity of informal, communicative and publishing materials (Brooks-Young,2007).

Studies have been made to underline the role of the teacher to sustain, stimulate, and train students more willingly than just sending out knowledge. The ongoing experience of utilizing computers has shifted from learning about computers, to learning computers, and lastly to learning with computers (Volman, 2005).

In recent times, there has been a rising attention to recognize how computers and internet can best be employed to obtain a effective and efficient teaching learning process. Attributable to the revised theories of learning, ICTs are supposed to support the process of learning. ICTs are recognized as a topic for investigation, a trait of a discipline or a career, and tools for teaching (Voogt, 2003). ICTs are best used to go with the rising pedagogy of constructivism. Besides, Voogt (2003) differentiated between traditional learning environment and constructivist approaches. The former views learning as transmission of knowledge to students, which is the major role of the teacher. On the contrary, the constructivist approach views learning as authentic and learner centered. The integration of ICT seeks to hold up the constructivist approach, where the teacher can design virtual and personal learning environments to students.

Presently, the traditional teaching methods and environments are not well-liked while multimedia technology fitting into audio and visual animation effects makes us more exposed to data. Furthermore, multimedia technology supplies a sense of authenticity and practicability, which critically fosters students' interest and impetus in study and their engagement in class activities. ICT constructs a context for language teaching and makes the class dynamic and attractive. Throughout the process of multimedia instruction, sounds and pictures can be put together, the fact which boosts the initiative of both teachers and students and enriches the content of classes.

RESEARCH METHOD AND ANALYSIS

This research was conducted with a group of teachers giving instruction in English language department at Tlemcen University of Algeria. The main research launched in February, 2017 when a survey questionnaire about teachers' perspectives of ICT integration in teaching learning process was administered to participants who revealed willingness to contribute in the study. The first research query addressed in this paper was about the perceptions of university teachers regarding ICT integration into their classroom instruction. Quantitative data of teachers' views and perceptions is provided in the table below.

Table1: Rank of factors effective in using ICT as perceived by EFL teachers

Rank	Factors	Mean	SD
1	Providing opportunities that traditional instruction cannot provide.	4.50	0.56
2	Providing 'authentic' experiences.	4.31	0.97
3	Creating an effective learning environment.	4.18	0.96
4	Enriching teaching/learning environment.	4.10	0.97
5	Extending beyond the lesson.	4.09	1.20
6	Providing feedback.	4.07	1.20
7	Replacing the traditional teaching aids by new ICT tools.	4.06	1.04
8	Providing edutainment in classroom environment.	4.03	1.08
9	Supporting teachers to plan in-class activities.	4.01	1.96
10	Supporting teachers to evaluate in-class activities.	3.88	1.12
11	Using a range of assessment methods.	3.86	1.30
12	Managing learning.	3.85	1.13
13	Increasing student achievement.	3.83	1.20
14	Managing time and pace well.	3.80	1.08
15	Revising the instructional strategies to be used.	3.15	1.17
16	Extending a vision for integrating ICT across the curriculum.	3.12	1.14
17	Helping teachers implementing in class activities.	3.07	1.13
18	Providing staff with personal access to ICT.	3.01	1.24

The present research showed that participant teachers supported the use of computer and Information Technology as a tool for: providing opportunities that traditional instruction cannot provide, providing 'authentic' experiences, creating an effective learning environment and enriching teaching/learning environment. In fact, theses teachers' beliefs about technology- enhanced teaching may not appear as distinct from how English language instruction is perceived and currently enacted without the use of technology. They thought technology should be used in a way that corresponds with the existing curriculum and their beliefs about EFL instruction in particular settings. Therefore, they are inclined to accept a form of technology-mediated instruction that helps them achieve their

high prioritised teaching goals, which are influenced by their own instructional beliefs and students' needs and backgrounds.

Although it is perceived among these teachers that technology has great potential in promoting communicative language learning, technology use in this context may not focus on these areas since teachers know that there is something more important in the classroom that needs to be addressed. This mismatch between actual instructional technology activities and the apparent potential of technology use to enhance instruction was further influenced by the lack of facilities and students' low language ability. These are major barriers to technology integration which may also hinder them from maximizing the capability of ICT in EFL instruction. The table bellow highlights the informants' perceptions about the factors that could affect a successful use of ICT.

Table2: Rank of factors contributing for reluctance of using ICT as perceived by teachers

Rank	Factors	Mean	SD
1	Lack of pedagogical training.	4.06	1.00
2	Lack of teacher ICT competencies.	4.02	1.03
3	Teachers' computer anxiety.	4.01	1.09
4	Lack of teacher confidence.	3.92	1.16
5	Fear of things going wrong.	3.30	1.05
6	Negative experience with ICT in the past.	3.30	1.14
7	No perception of benefits.	3.29	1.03
8	Teacher workload.	3.27	1.19
9	Lack of technical Support.	3.27	1.30
10	lack of time.	3.26	1.17
11	Resistance to change & negative attitudes.	3.20	1.19
12	Impact of public examinations.	3.19	1 .18
13	Age differences.	3.18	1.17
14	Gender differences.	3.17	1.16
15	Lack of personal access for teachers.	3.15	1.09

The present study revealed that "Lack of training" is deemed to be the first problematic issue that influenced the process of ICT integration as it affects teachers' competence to use of ICT. "Lack of teachers' competence" is a barrier that would generate other issues such as "Lack of teachers' confidence" . As they do not believe that they can manage the use ICT, teachers prefer not to use ICT because of "Fear of things going wrong" and also if they lived a "Negative experience with ICT in the past". "Teacher workload" and "No perception of benefits" tend as well to be an obstacle that prevents a successful use of ICT in teaching. Findings drawn from this study reveal that change should come from within teachers who need alter their negative attitudes towards the use of ICT if they realise the effectiveness of this tool for both teaching and learning process.

Since technology use in Algerian university EFL instruction is mediated by teachers' beliefs about what constitutes effective language teaching and how technology and information access can enhance the role f the teacher in classrooms, at this point, providing teachers with the latest educational technology is no longer what is required to encourage technology-mediated instruction. Rather, teachers should be encouraged to think about the unique capacities of each tool and how using that tool in the classroom could facilitate students' learning and achievement of current learning goals. It is now crucial to urge EFL teachers to critically evaluate the potential of instructional technology, and the value it would bring, and then design instructional methods and tasks that enhance language learning for students of the digital age. In these backgrounds, educators' shifting role in the 21st century entails a basic mission, which is to be willing for introducing technological novelties to teaching learning process. Currently, essential skills and the level of willingness are key factors in the integration process of innovative ICTs (Özo_ul, 2002).

CONCLUSION

The main aim of this research was to address the importance of understanding the perceptions of EFL teachers who know best what is good for them and their students. Although, including technology in language teaching is not mandatory in most Algerian university departments, EFL teachers cannot escape the need to teach with technology in the near future given the increasing presence and demands of online communication and electronic literacy. To ensure successful technology integration, it is highly important to tap teachers' cognition and perceptions about technology and their personal beliefs about language learning and teaching in particular contexts. As teachers play a major role in any kind of education reform and innovation, their perspectives, understanding, and beliefs should not be left unexplored. Teachers should be encouraged to explore and understand the interconnectedness of their own teaching principles. Once these are made clear, teachers will have a more informed basis for the integration of technology into their daily classrooms. It is important that teachers should seek both knowledge and models of good teaching to improve their teaching expertise, whether from their own experience, colleagues, and professional development opportunities, or the web. And finally teachers themselves should represent models of "good learning" for students and colleagues and never stop learning.

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