

Major Barriers and Challenges to Integrating ICT in Education

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Abstract: 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. Integration of ICT is essential to upgrade the quality of education and how ICT might permit teachers to construct different pathways. In these backgrounds, 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 ICT. The major objective of this study is to get experiential data on the current use of ICT by teachers 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 investigate teachers' perceptions of barriers and challenges that may influence integrating ICTs in the teaching process. The findings will be discussed in relation to learning theories in addition to the pedagogical outcomes for the use of ICT in EFL context.

Keywords: ICT, learning outcomes, teachers' perceptions, achievement, barriers, challenges.

1. INTRODUCTION

In a globalised world, education is vital and the mission of tutors and learners to be technologically practised lingers essential in the digital age. Technology is piloting many facets of human life and if integrated properly can only further improve the quality of the teaching and learning and hence endorse the didactic know-how of both teachers and learners. It is critical to investigate whether education technology identified as Information Communication Technology (ICT) affects the teaching and learning process in a positive way as compared to traditional learning. The present study sheds light on how ICT, all through teaching and learning, can promise that the learners have a most favourable learning experience. This research tackles the adoption of ICTs in the teaching and learning process, so as to probe and make a major input to the current literature.

The object of this survey is to analyse the situation in which ICT is being employed in an EFL learning environment. The present study focuses on the level to which teachers are using ICT and the impacts of implementing ICT on students learning experience. This research seeks also to highlight the main obstacles and challenges that teachers may come across when using ICT. The integration of ICT and its effects on teaching and learning will be debated throughout this paper.

2. ICTS IN TEACHING LEARNING PROCESS

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 the academic framework, the use of

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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. S, 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, S.2007).

Recently, there has been a rising attention to recognize how computers and internet can best be employed to obtain an 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.

3. FACTORS AFFECTING THE INTEGRATION OF ICT

Researchers such as Sherry, L. and Gibson, D. (2002) identified the major factors influencing the use of ICT in teaching-learning. It has been found that technological, personal, managerial, and organizational factors should be considered when integrating ICT. Rogers, E.M. (2003) made out three technological traits that influence the choice to go for newness. They cover content characteristics, technological reflection, and professional aptitude as factors influencing the use of ICT in the process of teaching. Teachers' integration of ICT is also influenced by management factors and

approaches towards technology (Chen, C. H. *et al.*, 2008).

3.1 Teachers' Attitudes:

Attitude is a predisposition to respond favourably or unfavourably to an entity, person, or incident (Ajzen, I, 1988). Effectual acceptance and incorporation of educational technology in curriculum, is chiefly based on teachers' prop and attitudes. Amongst the factors that have an effect on prolific integration of ICT in instruction are teachers' attitudes and standpoints towards technology (Hew, K. F., *et al.*, 2007 & Keengwe, J., *et al.*, 2008). If teachers hold encouraging perspectives toward the use of instructive technology, they can easily display helpful conception about the incorporation of ICT in the education framework.

3.2 Ict Competence:

Computer competence is delineated as being competent to handle a variety of diverse computer applications for varied usages (Tondeur, J, 2008). Teachers' computer competence is a foremost pointer of integrating ICT in teaching (Bordbar. F, 2010). Evidence involves that the majority of teachers who showed unfavourable or neutral attitude towards ICT incorporation in curriculum did not have knowledge and skills that would allow them to make “informed decision” (Al-Oteawi, S.M, 2002). It has been explicated that teachers with more know-how with computers have superior confidence and ability to use ICT effectively (Peralta, H. *et al.*, 2007).

3.3 Computer Self-Efficacy:

Bandura (1997) has conducted on teacher's self-efficacy and unveiled to have real influence on their employment of ICT. Self- efficacy is deemed as a confidence in one's own capacities to complete a task; and is pivotal to reach a goal or undertaking (). In fact, self-efficacy is the self-conviction that a person has in his/her capacity to execute what he/she wants to do. Consequently, teachers' confidence brings up both to the teachers' perceived notion of effectiveness to use ICT in teaching and learning (Peralta, H, *et al.*, 2007). Teachers' aptitude with computer technology is an elementary aspect for effectual implementation of ICT in teaching (Knezek, G. *et al.*, 2002). Teachers would feel indisposed to utilize computer if they require self-assurance (Jones, A. 2010).

3.4 Gender:

Gender differences and the deployment of ICT have been investigated in a number of researches (Tanveer, S.M 2009 & Teo, T., Lee, C.B. & Chai, C.S.2008). Although, studies about gender and use of ICT have revealed that female teachers have low levels of computer utilization because of their limited access to technology, insufficient proficiency, and lacking attentiveness (Volman, M. *et al.*, 2001). Studies disclosed that male teachers incorporate more ICT in

their classroom instruction than their female peers (Kay .R, 2006 & Wozney, L. *et al.*, 2006). Jamieson-Proctor, R. M. *et al.*, (2006) conducted a study on teachers' use of ICT in schools in Queensland State. Results from 929 teachers showed that the female teachers were integrating technology into their teaching less than the male instructors. Nonetheless, some studies claim that gender variable is not a determinant factor for integrating ICT (Norris, C. *et al.*, 2003).

3.5 Teaching Experience:

While only some research studies declared that teachers' experience in teaching did not influence their deployment of computer technology in their classroom performances (Niederhauser, D.S *et al.*, 2001), a large number of studies demonstrate that teaching experience influenced the efficient use of ICT in learning environments (Wong, E.M.L. *et al.*, 2008 & Giordano, V.2007 & Hernandez-Ramos, P. 2005). Teacher's experience is significantly associated with their deployment of technology. Effectual use of computer is said to be related to technological competencies and the self-sufficiency to delineate instruction along with student needs and skills (Gorder, L. M, 2008). A study reported that teachers with more experience in teaching are less willing to use ICT into teaching (Baek, Y.G, 2008). In addition, another study by U.S National Centre for Education Statistics (2000) stated that teachers with fewer experience in teaching were more anticipated to incorporate computers in their teaching than the experienced teachers. The reason behind this difference may be the fact that young teachers are more skilful in using the technology.

4. CHALLENGES AND BARRIERS TO INTEGRATING ICT IN EDUCATION

A study by 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; lack of teacher self-assurance; lack of academic teacher training; lack of follow-up of innovation and lack of training programmes. The school-level barriers entail lack of ICT infrastructure; outdated or poor hardware; limited 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.

ICT is an educational technology that supports and assists the process of teaching and learning yet, it is not always helpful as there are some limitations. Some individuals from inside and outside the education frameworks consider ICT as "Panacea" or the major significant solution to some teaching and learning problems. However, many conditions can be viewed as limitations of ICT integration in education. The limitations can be classified as student related,

technology related and teacher related. All of them potentially restrict the benefits of ICT to education.

4.1 Students' Related:

Conversely, the limitation of ICT integration in education is related to student behaviour (Dogan. M, 2010). Suitable use of computer and the internet by students have remarkable positive impacts on students' attitude and learning outcomes. Though, it is very recurrent to find limitations related to student behaviour. Students tend to use the technology in an inappropriate way and have less time to learn and search. It is claimed that online gaming, use of face book, chat rooms, and other communication canals as apparent disadvantages of ICT use in education, as, when switching to these sites, students may detract from learning. Internet access at home, for instance, may be a disruption due to chat rooms and online games, decreasing the time required to do coursework (Dogan. M, 2010). Then, the outcome of accessibility of ICT on student learning relies strongly on its particular usages. If ICT is not properly used, the drawback will go beyond the benefit. For instance, while students use the internet, they may get confused by the abundance of data to pick from. The other limitation of ICT implementation in education is technology related.

4.2 TECHNOLOGY RELATED:

The elevated fees of the technology, virus attack of computers and software, interruptions of internet connections, and poor condition of electric power are amongst the technology related limitations of ICT deployment in education. Furthermore, the lack of access to resources is regarded as a major barrier to the use of ICT in education. 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).

4.2.1 Lack of Time:

Findings from recent study have revealed that teachers are likely not to use ICT in their classrooms since it takes too much time to place equipment, to use 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. 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).

4.2.2 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 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).

4.2.3 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.

4.3 TEACHER RELATED:

The impediments 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.

4.3.1 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. *et al.*, 2005).

4.3.2 Lack of Teachers' Competence:

Teachers' competencies means their proficiencies and aptitudes to use ICT. 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).

4.3.3 Resistance to Change:

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).

4.3.4 Negative Attitudes:

Teachers' attitude play 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).

4.4 TECHNICAL RELATED

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.

4.4.1 Lack of Technical Support:

We have thus far dealt with teachers perceptions 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).

4.4.2 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.

4.4.3 Age Differences:

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

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. It has been disclosed 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 (BECTA, 2004).

4.4.5 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).

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 found that the gap is wider when considering the utilization of the internet; 56% of male educators compared with 38% of females (Bordbar, F, 2010).

There are strong connections between many 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. 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.

6. CONCLUSION

This research attempts to spotlight the potentials of technology to perk up EFL teaching practice and to provide effective language learning materials. By and large, participating teachers perceived the benefits of technology-mediated instruction to improve EFL learning and teaching process. Major advantages of technology in language teaching, such as supporting instruction and increasing students' engagement, were identified. Although, participants revealed concerns about some limitations to use ICT that are related to effective training, long standing pedagogical approaches and no perception of benefits.

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 the adoption of technology are affected by beliefs about their proficiencies, readiness and willingness to change on one side, and the perspective of ICTs in language teaching and learning on the other side. Moreover, it was found that the main role for participant teachers was adapting their technology-assisted instruction according to the perceived facilities and constraints of their instruction background.

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