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Digital Technology in English Language Teaching and Learning

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Abstract : Praise be to God, and prayers and peace be upon His Messenger, his family, and companions, and then :
Today, using technology is an urgent requirement in teaching and learning the English language. As a result, both teachers and learners need more devices and tools to accomplish their goals and develop their skills.

This study gives an overview of the recently developed applications of digital technology used in teaching and learning the English language. The researchers focus on the online classrooms and the applications widely used in recent years after the sudden attack of coronavirus that disables the educational systems in most countries over the world.

The paper also tries to link the pedagogical system based on technology with the theories and methods of education and find out to which school such system is related. The study ends with a brief account of the outcomes of using technology in language teaching and learning the language skills, i.e., listening, reading, writing, and speaking.

Key words:
Technology, CALL, Teaching & Learning, Learning Theories, The four skills

Abbreviations:
L1: first language
L2: second language
CALL: computer-assisted language learning
CMC: computer-mediated communication
CAI: computer-assisted instruction

1. **Introduction:** Technology has always been an important part of teaching and learning environment. It is an essential part of the teachers' profession through which they can use it to facilitate learners' learning. When we talk about technology in teaching and learning, the word 'integration' is used.With technology being part of our everyday lives, it is time to rethink the idea of integrating technology into the curriculum and aim to embed technology into teaching to support the learning process. That is to say, technology becomes an integral part of the learning experience and a significant issue for teachers, from the beginning of preparing learning experiences through to teaching and process(Eady&Lockyer,2013
According to Bull and Ma (2001), technology provides offers unlimited resources to language learners. Harmer (2007) and Genç lter (2015)

emphasized and teachers should encourage learners to find appropriate activities through using computer technology in order to be successful in language learning. Language is one of the significant elements that affects international communication activities. Clements and Sarama (2003) declare that the use of suitable technological materials can be useful for learners. According to Harmer (2007), using computer-based language activities improve cooperative learning in learners. Students utilize different parts of English language skills such as listening, speaking, reading, and writing for their proficiency and communication (Grabe & Stoller, 2002). In addition, Ahmadi (2017) stated that one of the important elements for learning is the method that instructors use in their classes to facilitate language learning process.

According to Becker (2000), computers are regarded as an important instructional instrument in language classes in which teachers have convenient access, are sufficiently prepared, and have some freedom in the curriculum. Computer technology is regarded by a lot of teachers to be a significant part of providing a high-quality education. Pourhosein Gilakjani and Sabouri (2014) emphasized that through using technology, learners can control their own learning process and have access to many information over which their teachers cannot control. Technology has an important role in promoting activities for learners and has a significant effect on teachers' teaching methods. If teachers do not use technologies in their teaching they will never be able to keep up with these technologies. Thus, it is very important for teachers to have a full knowledge of these technologies in teaching language skills.

2. **Definition of Technology** : Technology has been defined by different researchers. According to İŞMAN (2012), it is the practical use of knowledge particularly in a specific area and it is a way of doing a task especially using technical processes, methods, or knowledge. The usage of technology includes not only machines (computer hardware) and instruments, but also involves structured relations with other humans, machines, and the environment (İŞMAN, 2012).

   For Hennessy, Ruthven, and Brindley (2005) and Pourhosein Gilakjani (2017), technology integration is defined in terms of how teachers use technology to perform familiar activities more effectively and how this usage can re-shape these activities. Dockstader (2008) defined technology integration as the use of technology to improve the educational environment. It supports the classroom teaching through creating opportunities for learners to complete assignments on the computer or phones rather than the normal pencil and paper.

3. **The Use of Technology in English Language Class :** Technology is an effective tool for learners. Learners must use technology as a significant part of their learning process. Teachers should model the use of technology to support the curriculum so that learners can increase the true use of technology in learning their language skills (Costley,2014; Murphy, DePasquale, & McNamara, 2003). Learners' cooperation can be increased through technology. Cooperation is one of the important tools for learning. Learners cooperatively work together to create tasks and learn from each other through reading their peers' work. Bennett, Culp, Honey, Tally, and Spielvogel (2000) asserted that the use of computer technology lead to the improvement of teachers' teaching and learners' learning in the classes. The use of computer technology helps teachers meet their learners' educational needs. According to Bransford, Brown, and Cocking (2000), the application of technology enables teachers and learners to make local and global societies that connect them with the people and expand opportunities for their learning. They continued that the positive effect of computer technology does not come automatically; it depends on how teachers use it in their language classrooms.
According to Susikaran (2013), basic changes have come in classes beside the teaching methods because chalk and talk teaching method is not sufficient to effectively teach English. Raihan and Lock (2012) state that with a well-planned classroom setting, learners learn how to learn efficiently. Technology-enhanced teaching environment is more effective than lecture-based class. Teachers should find methods of applying technology as a useful learning instrument for their learners although they have not learnt technology and are not able to use it like a computer expert.
The application of technology has considerably changed English teaching methods. It provides so many alternatives as making teaching interesting and more productive in terms of advancement (Patel, 2013). In traditional classrooms, teachers stand in front of learners and give lecture, explanation, and instruction through using blackboard or whiteboard. Dawson, Cavanaugh, and Ritzhaupt (2008) and Pourhosein Gilakjani (2014) claim that using technology can create a learning atmosphere centered around the learner rather than the teacher that in turn creates positive changes. They make known that by using technology, language class becomes an active place full of meaningful tasks where the learners are responsible for their learning.

4. Theories encouraging the use of technology in language learning : Whilst the 20th century, most of educational theories, let's say Behaviorism, Connectivism and Constructivism, have been widely matched in education, seriously associated with the development and occupation of the educational technology. Researchers and scholars confirmed that the following theories have greatly stimulated and effectively fulfilled in programmatic teaching, and has strongly promoted and widely applied in computing-assisted-instruction (CAI henceforth) and the development of educational technology. (Rummel: 2008)

4.1. Behaviorism : The major concern or emphasis of Behaviorism is noticeable parameter that learning is going on. Opposing this view of learning is the emphasis of cognitive psychologists who parallel learning with the mental procedures of minds. Behaviorists do not completely negate the existence of such intellectual processes, but they in fact, confess their existence as an unobservable evidence of learning.

The focus of Behaviorism is on the conditioning of observable human behavior. J. B Watson, the father of Behaviorism, defined learning as "a sequence of stimulus and response actions in observable cause and effect relationships". The behaviorists' sample of classical conditioning reveals the process whereby a human learns to respond to a neutral stimulus in a manner that would typically be connected with an unrestricted stimulus.

Applying the theoretical principles of Behaviorism to learning environments, it is easy to recognize that we have many "behaviorist items " in our learning world. A separation of the old-style teaching methodologies used for years would make known the powerful effect that Behaviorists had on learning. The concept of directed instruction, whereby a teacher is providing the knowledge to the students either directly or through the contingencies system is an admirable pattern of the Behaviorist model of learning. The use of tests to measure observable behavior of learning, the use of rewards and punishments in our school systems, and the breaking down of the instruction process into "conditions of learning" (as developed by Robert Gagne:1992), are all further examples of the Behaviorist influence.

As a prominent way of teaching, CAI uses the drill and practice style to acquire new concepts or skills. The question acting as the stimulus, provokes a response from the learner. The "contingencies" of learning are translated into different ranks of the program. users have adopted CAI as an effective teaching approach because it permits self-paced instruction and it releases them from the direct instruction of teachers so as to focus on their needs.

4.2 Social constructivism : Constructivism can be recognized as a sole learning theory by itself as It may however, be accompanying with cognitive psychology as a theory of learning that focuses on a student's capacity to construct a mental meaning of their own environment and to produce their own learning. As a teaching method, it is related to different degrees of non-directed learning. The term constructivsm is associated with Cognitive and Social Constructivsm.

Constructivism is "a philosophy, or belief, in which learners make their own knowledge based on interactions with their environment including their interactions with other people" (Draper, 2002, p. 522). Constructivists recognize learning as an interpretive process made by active learners interrelating with the physical and social world (Fosnot, 1996).

Constructivism has been proven effectively in assisting teachers in meeting the challenge of improving student achievement. "Assuming the role as 'guide on the side' requires teachers to step off the stage, relinquish some of their power, and release the textbooks to allow their students to be actively engaged and take some responsibility of their own learning". (Kearsley, 1994).

Constructivists consider that all humans have the ability to create understanding in their minds over a process of discovery and problem-solving. The extent to which this process can take place naturally, without structure and teaching is the essential aspect amongst those who advocate this learning theory. It is a cognitive learning philosophy as it focuses on the mental procedures that construct meaning equal to Other theories of cognitive learning such as: Information-Processing theory and Brain-based learning theory. (Gardner, 1993, p.15)

4.3 Connectivism : This theory is regarded as the learning theory of the digital era. A primary assumption of this theory is that "knowledge is distributed and exist in outside of ourselves" (Siemens:2005). However, "knowledge is spread across a network of connections, thus, learning refers to the ability of constructing and traversing those networks". This tortious knowledge is gathered from a network of connections arising from knowledge and interactions within a community. This is a different hypothesis from that used, for instance, in constructivism where knowledge is constructed by the learner (Piaget, 1976).

"Siemens (2005) outlines eight principles of connectivism:

- Learning and knowledge rest in a diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known .
- Nurturing and maintaining connections is needed to facilitate continual learning.

- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is in itself a learning process.

Parallel with constructivism, a learner is in the center of the learning process in connectivism. Yet, the interacting methods in connectivism increases a dimension to the social perspective in which the collaborative activities improve knowledge construction (learning) in a little different way. In constructivism, learning is "determined by the complex interplay among learners' existing knowledge, the social context, and the problem to be solved". Besides, the focus is on the understanding of the circulation of knowledge and intelligence over the learning network, therefore, the role of technological tools is to help the learner to construct knowledge. In this view, connectivism releases a way of thinking about the item of learning in different ways. The object of learning becomes distributed across human and non-human resources. This in turn affects the way one thinks about designing learning activities and how they are enacted in technology-supported learning environments. (Tam: 2000)

5. Advantages of using technology : The development of technology as experienced today has changed our way of life. Computers , tablets and smartphones have become an urgent part of our everyday lives. They provide us easy access to unlimited amounts of information and sources. Recent studies have shown that learners have become *digital natives* (Mahrooqi and Troudi 2014: 2). Therefore, it seems natural to include technology in language teaching. However, it is a challenge for teachers to provide students with meaningful ways of using the devices for learning, so that the technology can be a useful tool. Not only has the access to knowledge completely improved in the multimodal world, but also the authorship and ownership of knowledge has gone through a change (Taalas 2005). Researchers can find infinite amounts of information on the Internet and they may create and share one's own documents for the world to see. However, the advantages of using technology in language teaching and learning can be summarized as follow:

5.1. The easy arrival to materials : The first thing teachers thought about when using technological tools in their teaching is the easy access to provided information and sources for their lessons. Since most teachers demanded to use at least computers and document cameras in their lessons as they had really become valuable tools in classrooms.

5. 2. To refine Learners' Interest in Study : Nowadays, the outmoded teaching methods and environment become unpopular while technological multimedia including audio, visual animation effects naturally and humanely makes us more access to information besides, with such characteristics as abundant-information and crossing time and space, multimedia technology suggests a sense of reality and functions very well, which prominently cultivates students' interest and inspiration in learning process with their involvement throughout course activities.

5.3. To Stimulate Students' Communication skills : Outdated teaching has hindered students' ability to comprehend language meaning, structures and skills. It makes the students passive recipients of knowledge, so it is hard to achieve the target of communication. With teachers' guidelines leading students' thought patterns and motivating students' emotions, the multimedia technology seeks involvement of both teaching and learning and provides the students greater incentives. Recent technological tools activate students' thinking like the visual and vivid courseware that help them to convert English learning into capacity cultivation. And such in-class activities as group discussion, subject discussion, and debates can also offer more opportunities for communication among students- students and teachers- students procedures. So, multimedia technology teaching has exclusively inspired students' positive thinking and communication skills in social practice.

5.4. To Extend Students' Knowledge grown from advanced pedagogical Cultures : The technological courseware can offer the students overflowing information; more plentiful than textbooks which help them to get brilliant cultural background, rich content and true-to-life language tools. They are much natural and closer to life. Not only help learners increase their listening ability, but also to know the western culture. Grasping information through various channels and sharing them among students to make them actively participate in class discussion and communication.

5.5. To Increase Teaching Effect : Multimedia teaching improve teaching process and make the best of class time. It also breaks the "teacher centered" technique, besides, using technological devices primarily increase class efficiency. It is difficult for the students to have speaking communication through large number of classes. The use of multi-media devices materializes the individualized and co-operative teaching. On the contrary, multimedia technology goes beyond time and space, creates more brilliant, visual, reliable environment for English learning to stimulate students' advantages and to save class time meanwhile increasing class information.

5.6. To Expand Interaction between Teacher and Students : Technology stresses the role of students and enhances the importance of "interaction" between teachers and students. A major feature of multimedia teaching is to train and improve students' ability to listen and speak, and to develop their communicative competence. During this process, the teacher's role as a facilitator of teaching and learning process. Using multimedia in context creates a good platform for the exchange between teachers and students, while at the same time providing a language environment that improves the traditional classroom teaching model. In this way, teachers in the classroom no longer blindly input information and force students to receive it in a passive way.

5.7. Making a Context for Language teaching : Using technology in the class creates a context for language teaching. This method makes the class lively and more interesting as well as optimizing the organization of the class. Multimedia has its own features such as visibility and liveliness. During the process of multimedia English teaching, sounds and pictures can be set together in order to enhance the creativity of both teachers and students. While using technological devices, teachers can use pictures and images to enrich the content of classes.

Through the whole interactive process, it is obvious that using multimedia in ELT is an effective means of cultivating students' interest in learning English as well as enhancing teachers' interest in English language teaching. As Zhang (2006) points out that through Multimedia and network technology, we can offer students not only rich bases of authentic learning

materials, but also an attractive and a friendly interface, vivid pictures and pleasant sounds that increase students' interest in learning English.

5.8. To Offer Flexibility in Course Content : Flexibility is an important trait technology presents in teaching and learning process. It is obvious that the context can be created not only inside the classroom but also after or outside class time.

6. Disadvantages of using technology : Even though technology can develop teaching in numerous techniques, it can also cause problems. There are problems with the devices themselves or teachers and students might not yet be easy enough with technology to get benefit of it in teaching. Besides the positive aspects, teachers also share their experiences of different negative impressions considering the use of technology in their teaching, these will be analyzed in this section. The findings are divided into three main sections; they are the following:

6.1 Problems related to students' unusualness with the use of technology : Even though technological devices can enhance teaching, they do not always work perfectly. There are other problems related to the use of technology, such as problems with the internet connection. Even though current technology is highly developed and relied by teachers, many problems occurred and they caused worries for the teachers. Therefore, the teachers needed to have a backup plan, if they suddenly were not able to use the material they had on computers or online.

6.2 Problems with students' awareness : Since technological devices provided an easy access to information, students could easily use them for their own purposes during a lesson. Even if they were advised to do specific tasks, it was difficult for the teachers to keep track on everything that happened in a classroom. Thus, rather than doing their tasks, students used social media or did other things they were not supposed to with their devices. Therefore, they lost their concentration on the subject and disturbed the lesson.

6. 3 Problems with the correction of essays : A problem that only emerged from the interviews with the high school teachers was the correction of essays. In the interviews with the secondary school teachers, none of them mentioned anything about this subject. Both high school teachers explained that they had not found any practical way to correct essays as easily on computer as by hand. They both said that it took more time to mark and explain students' mistakes on computer, and therefore they still preferred doing it by hand.

6. Technology and the four skills:

6.1-TECHNOLOGY AND SPEAKING: Spoken communication is very essential skill in language learning method. In today's language classrooms, substantial emphasis is assumed to oral activities in which learners use the target language to communicate with each other. These actions include reproductions, discussion and role-plays. Computer simulations provide a stimulus for such a work, as they offer both a focus for oral activity and a continually changing situation for learners to talk about. Technological devices have a valuable contribution to the growth of oral skills if they are used wisely (Hammersmith: 1998). Dialogues can be presented by computers with the aid of the movies when students listen to these dialogues or conversations, setting and cultural atmosphere clearly. They can also realize the body movements and the semiotic activities of the conversations and earn a powerful knowledge, then, improving their communicative competence.

Speaking can be assisted by technology in two modes, tutorial CALL and CMC. While classroom instruction primarily adopts interactions and helps students to notice their gaps in L2 knowledge. Tutorial CALL practice on the other hand can assist memory storage of L2 phonemic and morphological contrasts as well as facilitate lexical phrase recovery. Usually, these types of programs ask students to compare their own audio recordings with those of native-speakers of diverse accents. However, offer real speaking and human feedback opportunities either with other L2 learners or L1speakers as in the case with online language teaching. (Blake, 2011).

6.2. TECHNOLOGY AND LISTENING: Listening activities based on computer are more complex than the other forms of CALL materials. One of the simplest ways of giving practice in listening comprehension is to use a multiple-choice or fill-in program techniques along with a cassette recorder or the newest multimedia containing a recorder. In addition to the normal feedback given after a wrong answer, the computer helps the learner hear the appropriate part of the tape again. While using a separate cassette recorder, the error message can supply the learner appropriate counter numbers. Another simple technique is to use a tape with a test-reconstruction program which enables learners to reconstruct a summary of recordings on screen by the help of the tape.

Listening comprehension is essential to learning. Learners who are able to demonstrate listening skills are able to demonstrate proficiency in other language skills. Due to the relatively unappreciated role of listening in language development, educators and language experts have been actively promoting the equal or emphasized enhancement of listening skills among students. Through multimedia, speakers are provided with access to several visual and aural L2 texts via audio, video, the Internet, podcasts, blogs and

others. Such activities not only help to participate listening and writing skills but to evaluate learners' listening comprehension skills in a more active way than is generally possible in a non-CALL class (Jones & Fortescue: 1987).

6.3. TECHNOLOGY AND READING: Text-based reading is an endless tool on the web, even with the recent multimedia versions of Web that enhance pages with images, clips, sounds and video. Godwin-Jones (2015:11) argues that "Much of the activity in globalized online spaces is within genres that are exclusively or primarily text-based". Accordingly, language reading has been the skill that CALL procedures have consistently emphasized.

In fact, one of the most habitually declared CALL advantages both with respect to tutorial CALL and CMC has been the notion of textual determination, because the text preserved on the computer screen permits language learners more time to process unfamiliar linguistic structures. With specific reference to reading skills, CALL researchers have focused in the main on the effects of dictionary lookups within a computer-supported or mobile-assisted environment. Lingual speaking, an obtainable online glossing program provides definitions with audio for most languages like French, English, Spanish, German, Arabic, Hebrew, Italian, Dutch, Russian, and Portuguese. Users double-click on any word on any web page to look up words using a special plugin available for the Chrome browser.

There are many ways in which computers can employ continuous text which involve the learner in close study of the content and structure of the text. An example might be shadow reading which provides students with authentic texts. Additionally, sentence structure, speed reading and close-reading are some of the alternative ways of developing reading skills.

6.4. TECHNOLOGY AND WRITING: Language teachers have always recognized the importance of technology in reading and writing. For both teachers and students, writing offline with technological devices is the only way to compose a text of any significant length. Concerning online writing, the Internet facilitates collaborative writing via electronic discussion mediums such as blogs, wikis, shared documents (e.g., Google docs).

Word-processing programs regard the computer as a sophisticated or flexible writing tool that can increase learners' writing skills and their attitude toward writing. The fundamental belief of word-processing programs is based on the ability to operate text freely. By writing text into the memory of a computer, the writer can play round with his/her text up to a complete satisfaction. The word-processor provides useful practice for guided and free writing. Vocabulary, grammar, punctuation and reading tests have a complete consequence to the sub-skills that are needed for writing (Duber: 2000). By providing something to write about, the computer stimulates both writing and speaking. An example might be the following activity from the

Redhouse Dictionary CD-ROM: 'Put the jumbled idioms in order and write them in your notebook.

Academic writing, on the other hand, is usually thought of as something separate from these CMC exchanges. The act of both personal and collaborative academic writing, whether mediated by the computer or not, should ideally involve an iterative or staged process that constantly recovers analysis, design, development, implementation, and evaluation. Obviously, CMC tools can be used to foster collaborate work and feedback at these various stages of the writing process. Writers, whether in their L1 or L2, seek to produce texts that are coherent, well-organized, rich in content, appropriate with respect to rhetorical and genre conventions, and accurate with respect to linguistic and pragmatic norms.

Conclusion:

This paper reviewed some important issues related to the use of technology in language learning and teaching. It is indicated that technology resources cannot guarantee teachers' teaching and learners' learning. Teachers should be convinced of the usefulness and advantages of technology in improving learners' learning. This means that teachers need support and training for integrating technology into language teaching.

The paper revealed that when technology is used properly, it can bring about a lot of advantages to teachers and learners. It is a source that can be used by learners because it helps them solve their learning problems and find procedures to use what they have learnt in ways that are effective and meaningful. In addition, it is concluded that the use of technologies plays a key role in language learning based on their own pace, helps in self-understanding, does not stop interaction with the teacher, and makes high motivation in learners for the effective learning of language skills. Furthermore, the paper characterized that learners should use technology to enhance their language skills because it has as a crucial role in developing learners' creativity and provides them with interesting, enjoyable, and exciting alternatives to study the language.

To sum up, the findings of this paper reveals that using technology provides interaction between teachers and learners, offering understandable input and output, helps learners to develop thinking skills, makes learning and teaching becomes more student-centered, promotes learners' independence and helps them feel more confident, and increases learners' motivation to effectively learn a foreign language. The last and most important value of using technology in the educational system manifested in the recent years when all the pedagogical systems worldwide had been stopped suddenly because of corona virus. Learning online and using new applications or devices become an urgent demand in the educational process to be ready for such natural or medical disasters or even wars.

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