Technology Enhanced Language Learning: COVID-19's Impact on Digitalization of Education

Hamed Barjesteh,
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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ASR	Automatic Speech Recognition
BNC	British National Corpus
CAI	Computer-Aided Instruction
CAL	Computer-Assisted Learning
CALI	Computer-Assisted Language Instruction
CALL	Computer-Assisted Language Learning
CALT	Computer-Assisted Language Teaching (or Testing)
CASLA	Computer Applications in Second Language Acquisition
CASLR	Computer-Assisted Second Language Acquisition Research
CAT	Computer-Adaptive Teaching (or Testing)
CBT	Computer-Based Training
CC	Classroom Concordancing
CFL	Chinese as a Foreign Language
CLE	Constructivist Learning Environment
CLT	Communicative Language Teaching
CMC	Computer-Mediated Communication
CMI	Computer-Mediated Instruction
CSCL	Computer-Supported Collaborative Learning
DDL	Data-Driven Learning
DIF	Differential Item Functioning
EDE	Emergency Distance Education
EFL	English as a Foreign Language
EP	Electronic Portfolio
ERT	Emergency Remote Teaching
ESL	English as a Second Language
GLoCALL	Globalization and Localization in Computer-Assisted Language Learning

ICALL	Intelligent Computer-Assisted Language Learning
ICT	Information and Communication Technology
IT	Information Technology
L2	Second Language
LA	Learning Analytics
LMS	Learning Management System
MALL	Mobile Assisted Language Learning
MESTI	Ministry of Education, Science, Technology, and Innovation
MSLRT	Modified Signed Likelihood Ratio Test
NBLT	Networked-Based Language Teaching
NLP	Natural Language Processing
PBL	Problem-Based Learning
PCs	Personal Computers
PLATO	Programmed Logic for Automated Teaching Operations
PRC	Pew Research Center
PrOCALL	Project-oriented CALL
SARS	Severe Acute Respiratory Syndrome
SCC	Small-Corpora Concordancing
SCT	Sociocultural Theory
SLA	Second Language Acquisition
SMS	Short Message Service
SNSs	Social Networking Sites
SRL	Self-Regulation Learning
ST	Source Texts
TALI	Technology Assisted Language Intervention
TAU	Treatment As Usual
TELL	Technology-Enhanced Language Learning
TT	Translations Text
UNESCO	United Nations Educational, Scientific, and Cultural Organizations
VR	Virtual Reality
WELL	Web-Enhanced Language Learning
WHO	World Health Organization
ZPD	Zone of Proximal Development

PREFACE

The use of technology in education in general and English as a Foreign Language (EFL) context, in particular, drew the attention of the practitioners and second language (L2) professional researchers. Currently, technologies have been adopted in L2 settings to enhance the process of language learning. The use of this technology and distance learning become a must during the CORONA virus attack in the world. In response to the coronavirus outbreak, all educational settings were closed. This unexpected decision left the system of education in limbo. To minimize the effect of the prolonged shutdown, many teachers should employ different social networks as a base platform to teach online instruction. The majority of school teachers used common messaging platforms such as Skype, WhatsApp, Telegram, or a learning management system (LMS) to teach. Mobiles with all capability become accessible in all urban and rural areas of many countries. In effect, in many countries, the widespread access to such a sophisticated device have rather changed the landscape of electronic learning (E-learning). In fact, mobile learning can be considered as the next generation of e-learning. It can serve as an extension for learning in a new environment with new capabilities. The digitalization of education comprised different aspects of quality that sharpen critical thinking skills, promote cooperation, and teamwork. In many parts of the world, the summit of distance learning has occurred during the COVID-19 pandemic. The COVID-19 pandemic has affected educational systems worldwide. Accordingly, this pandemic led to the near-total closures of educational settings ranging from schools to universities. As of 18 May 2020, approximately 1.725 billion learners were affected due to school closures in response to the pandemic. Accordingly, teaching and learning have altered drastically, with the constructive promotion of E-learning. This pandemic led education to undertake online instruction and incorporated different digital platforms. This book introduces a brief overview of language teaching and instructional technology. In addition, it gives a critical look at computer/mobile assisted language learning (MALL), and electronic tests (i.e., technology-assisted language intervention (TALI)). Finally, the book ends with learning shifting toward online learning during the COVID-19 pandemic. The book also outlines factors influencing the quality of online learning, parents' attitudes toward online learning, and teachers' challenges for online classrooms during Coronavirus.

—Hamed Barjesteh

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Mohamad Heidarzadi

Chapter 1

Technology-Enhanced Language Learning

CONTENTS

1.1. INTRODUCTION

Language is considered to have been one of the effective ways to improve communication tasks and actions worldwide. According to Grabe and Stoller (2002), for their language communication and literacy, pupils come across various elements of primary language skills in English, such as writing, listening, speaking, and reading. Ahmadi (2017) found that one of the crucial components of learning is the approach that teachers use in order to promote the process of language learning in their classes. As Becker (2000) pointed out, they are adequately trained in classroom instruction in which instructors have better accessibility and have some autonomy in the lesson plan. Computers are acknowledged as a key instructional tool.

Computer technology is considered to be a big part of delivering a perfect education by many teachers. As said by Bull and Ma (2001), technology assists learners with limitless and diverse ranges of tools. Harmer (2007); and Genç lter (2015) further said instructors motivate their students in order to use computer technology to find proper tasks and activities. Clements and Sarama (2003) argued that it can be efficient for learners for using suitable technical materials. The use of computer-based language tasks improves collaborative learning in pupils, according to Harmer (2007).

In addition, Tomlison (2009); and Genç lter (2015) endorsed pc-based tasks to provide students with prompt and fast knowledge and relevant courses. They have continued to inspire learners to learn even more from internet content. Additionally, Larsen-Freeman and Anderson (2011) highlighted the fact that technologies contribute to resources for teaching and bring educational experience into learners. By the use of technology, learners can be given a massive number of authentic materials and, as a result, they can be prompted to learn a new language.

Technology is very much a crucial component of the community for English as an EFL classroom. It is a critical feature for instructors' career in which they are allowed to utilize it to develop the learners' progress. The term 'integration' has been used in the world of technology for teaching and learning. It is the exact to reconsider the concept of incorporating the digital world into the classroom and try to put technology in the field of language teaching to add to the classroom activities, with the aid of technology being just a big part of our daily lives. In other words, technology has become a big part of the learning experience and an excellent problem for instructors, from the beginning of the planning of learners' opportunities to the learning and teaching process (Eady and Lockyer, 2013).

No one may say nowadays that teaching materials that do not use such types of technology help to learn and teach languages effectively. In past years, technology is often used to further help and develop language instruction, beginning by preschool and targeting higher levels of education. Mostly as a result, existing language education policies suggest a willingness to use different types of technology to help teaching to involve EFL students in the learning process, and also to create materials of the cultures and community. In addition, according to Tomlinson (2001), a number of technical devices allow instructors to change teaching and adjust tasks and homework to the varied expectations and needs of the students in order to maximize the quality of language learning. To put it simply, as a tool to support foreign language teaching in resolving and promoting learning process for learners, technology continues to rise in prominence. Technology often plays a subsidiary role, influenced by the human component, especially teachers and students, and defined by it. It is a true fact that the combination of traditional and modern approaches in an all-inclusive manner is extremely indispensable in order to be able to fulfill the desires and objectives of the course adequately. For this reason, technology offers a broad variety of valid outlets for practicing the four skills (speaking, reading, listening, and writing); therefore, in current language instruction, learning has become indispensable through the use of technology in language now.

Pourhosein (2017); and Solanki and Shyamlee (2012) have advocated the belief that technology has changed the approaches of language teaching. The researchers kept on using technologies to assist students learn on the grounds of their preferences. It also respects both the learners' perceptual senses. As Lam and Lawrence (2002); and Pourhosein (2017) reported, technology is of major importance in helping students integrate their personal learning processes, and they will have access to all kinds of knowledge that their teachers cannot provide them with. In Pourhosein's (2013) opinion, technology has implicit to alter current methodologies of education in language learning. Pourhosein and Sabouri (2014) pointed out that learners are able to manage their individual learning process via the use of technology and also have access to a wide range of knowledge that their teachers cannot monitor. In encouraging projects for learners, technology has a paramount role and also has a big effect on teacher teaching methodologies.

They can never be willing to proceed with these advancements if teachers do not utilize technology in classes. In communication skills and teaching, it though is highly essential for instructors to have a thorough information of

any of these technologies (Pourhosein, 2017; Solanki and Shyamlee, 2012). Widening the expertise of learners appropriate for computer technology offers equal opportunities, considering the context of the learners. While learners are born in a digitally industrialized world, they might not be experienced technology users (Bennett et al., 2008). Furthermore, it is not sufficient to just have access to technology. For any and all learners, the deliberate creation of technology-based skills is exceptional for growing their education (OECD, 2010).

1.2. DESCRIPTION OF TECHNOLOGY AND ITS INTEGRATION

Multiple researchers and scholars have identified technology. It is the functional use of information directly in a relevant area, and according to Isman (2012), and is a way with doing a job mainly using practical understanding, procedures, or strategies. The use of technology involves not only equipment, computers, and materials, but also formal relationships with other people, the setting and machinery.

Technology integration can be defined, as maintained by Hennessy et al. (2005); and Pourhosein (2017), in terms of just how teacher educators use techniques to accomplish recognizable tasks more efficiently and whether these tasks can be re-shaped by this use. Dockstader (2008) also described the incorporation of technology as the utilization of technology to enhance the education system. It facilitates classroom teaching by providing opportunity for pupils in order to perform assignment activities on the computer rather than on the traditional pen and paper.

1.3. A BRIEF OVERVIEW OF LANGUAGE TEACHING AND INSTRUCTIONAL TECHNOLOGY

There really are two primary stages of language guidance supporting technology: visual media and audio media. The latter resources are accepted as the very beginning instances of technology in language the field of teaching. Firstly, the audiotapes are going back to the late 1950s. Large, massive, and thick were the first audiotape devices, but it only has become a widespread platform in the 1970s with the advent of audiotape, which causes a large effect on the process of teaching. Just after the early 1980s, the widespread utilization of audio led to the development of audio language laboratories, which allowed all learners and instructors to control access to

audio materials. Then, the latest types of digital audio entitled "the audio compact disc or CD" were developed and soon caught on in the early 1980s. And notably, computer-based digital audio in the 1980s was the last form of digital audio.

Essentially, the development of the utilization of audios in language teaching has made comprehensive and engaging use of genuine evidence and is still commonly used in L2 learning. Since the listening skill is considered as the primary stages in the process of language learning, it is possible to recognize the development of audio media as a stage in incorporating technology into the teaching of the language in the classroom. Even so, what is of great help to enable at the beginning of language learning is extensive comprehensible inputs (chiefly via listening and reading) that can enable students to continually develop their language capabilities as stated by Krashen's (1985) input theory. In contrast, all of the listening exercises and tasks encourage learners to listen to lessons that include known things that may be helpful regarding providing the relation to listening and reading. As a consequence, audio technology and how it is used can be used collaboratively to help them with visual media through computers and projection machines and in doing so allowing learners to keep up with texts with the audio recorded by local people of the target language.

Nowadays, the books provide students and teachers with extensive interactive and communicative audio resources (such as CDs) by creating words in context and a range of cultural aspects, along with genuine linguistic knowledge. In addition, as parallel listening technologies, MP3 players and mobile phones are commonly used and allows students to do listening tasks as well. Video clips and photographs are viewed as a critical dimension of visual media that is also used successfully in language teaching. Photographic immobile clips are amongst the most popular visual media used nowadays, either in the form of frames or pictures on a CD-ROM or videodisk.

In order to use these still objects, slide, and spotlight screen were special types of devices from the 1960s, but they have become an easy technology for using. Although they have had benefits, namely fundamental consistency in their technology, for a set period of time, they are currently in the process of being obsolete advancements. Slides can usually be created on personal computers (PCs) that give the teacher the benefit of someone using altered images and assembling the photos in different ways for numerous types of learners. TV and dynamic video were both utilized extensively for a specific time from the beginning of the 1960s. They are often used by teachers

in language courses when needed, but computers have the technology to use both of them concurrently instead of multiple devices. The integrated variants of technology have evolved with the aid of computers and the internet and instructors, especially as internet usage has become so prevalent in learning environments along with computers in order to establish very comprehensive instruction related to educational technology, and learners have begun.

It should be pointed out that the wide need for visual media is focused on computers. Computers are often used for language instruction, particularly for visual media, since about the 1960s (Seferoglu, 2005). A modern concept, called Computer Assisted Language Learning, has spawned a number of computers into language teaching (CALL). It is possible to break this period into three separate parts: behaviorist CALL, interactional CALL and interdisciplinary CALL of the phases referred to a particular level of technology and a cognitive and metacognitive learning method (Warschauer, 2004). Behaviorist CALL was utilized in the 1960s and 1970s, as reported by Warschauer (2004) for instructional aims. He further clarified that this type of CALL usually uses repeated language drills called drill-and-practice, in line with behaviorist learning. Warschauer also claimed that in the U.S.A., this model is especially preferred, and indeed, the computer is considered to be an interactive teacher which never really exceeds discretion and enables learners to independently study any issues. The next step, known as interactional CALL, appeared in the early 1980s, just after behavioral methods were about to be dismissed from both an educational and empirical point of view, and then when PCs began to generate multiple single potential applications (Warschauer, 2004). Advocates of interactional CALL emphasized that the teaching should place focus on how to utilize materials, encourage, and also empower learners in order to create unique expressions instead of just trying to convey by using dictated linguistic forms rather than actively teaching language forms, and enable learners to effectively use the target language (Jones and Fortescue, 1987). Via interactional CALL, the emphasis was on what learners do this through technical devices as well as how they connect with one another or computers when learning and training.

Regardless of the fact that interactional CALL was recognized as an advanced form of behavioral CALL, some significant concerns began to be received concerning meeting the evolving needs of language learning. The theory of communicative language teaching (CLT) was confined to computer use of language teaching that, as per Warschauer and Healey (1998), this prompted a broader rethink of the practice and research of CLT.

A considerable majority of teachers have moved from a person's perception of CLT to a communicative understanding of the use of language in real social circumstances (Warschauer and Healey, 1998). Project, task, and content-based methodologies both involve students with the use of multiple language learning and then use skills in authentic environments. This contributed to a better outlook on language learning and technology, termed "Integrative CALL" (Warschauer, 1996). As shown by this approach, instead of visiting the computer lab, learners learn how to use different technical instruments only within the usual course of language learning (Warschauer, 1996). As an alternate term for CALL, information and communication technology (ICT) is used. This concept includes technologies in which a major role is played by the machine, i.e., CALL, the Internet, and a range of applications for general computers. In addition, the newest ICTs used for language learning and teaching stand out as cloud, Twitter, Facebook, WebQuests, apps, and smart applications.

1.4. COMPUTER-ASSISTED LANGUAGE LEARNING (CALL)

Over the past decade, CALL has gained considerable attention, and several studies have been investigated to understand the weaknesses and attributes of field studies (Stockwell, 2007). CALL is historically represented as a way of introducing, strengthening, and checking specific objects in a language. Initially, the pupil is provided with a rule and a few instances, and instead gives response to a number of questions that assess his/her comprehension of the rule and the machine provides sufficient support and offers a score that may be appropriate for the instructor to review at a later point in time (Gunduz, 2005). Gunduz disclosed that while computers have already been used since the 20th century, they were never used until about the 1960s for educational objectives.

In the 1970s, in the area of language learning and linguistics, the use of CALL arose. The computer-assisted instruction (CAI) projects in CALL were the computer programs created in the USA in the 1960s. By the 1980s, individuals have undergone the extension of the PCs in communities and academic institutes. Computers have been used in hundreds of schools since the early 1980s, and CALL technology seems to have become more famous in the market (Ittelson, 2000). In language teaching, CALL is an emerging power. Despite its continuing challenge to educational psychology, it is starting to mature and showing that it can be a crucial factor in the success

of qualified staff (Knowles, 2004). The internet has indeed been explored in numerous studies to build up the linguistic abilities of learners by improving their positive perceptions to language learning (Felix, 2001; Kung and Chuo, 2002; Son, 2008), self-instruction mechanisms (Dunkel, Brill, and Kohl, 2002; Harris, 2003) and self-confidence procedures (Dunkel, Brill, and Kohl, 2002; Harris, 2003) (Dooly, 2007; Nga, 2002). There is evidence that children may improve their attitudes, motivation, and commitment in language in a different style of learning by using the internet (Al-Jarf, 2007; Felix, 2001; Lee, 2005).

1.5. COMPUTER-ASSISTED LANGUAGE LEARNING (CALL) AND PREVIOUS RESEARCH

The vast volume of research, including advances in technology and CALL analyzes, have centered on the technology's use in the area of language learning and instruction (Zhao, 2003). Lasagabaster and Sierra (2003) claimed that while many studies examined the attitudes of learners and teachers concerning CALL, there were still some studies on the experiences and perceptions of learners. Kessler and Plakans (2001) argued that learners must be included in the process of assessing materials because they are also pioneering in their learning and beneficiaries of course books.

Lasagabaster and Sierra (2003) conducted a research through which learners had the opportunity to share views on the software they used in the lab. There were 59 undergraduates who answered a questionnaire, and it was confirmed that in the foreign language classroom, learners mainly see software programs as a potential substitute. It is also taken into account that effective implementation of computer-based, collaborative, and communicative practices will produce countless benefits for L2 learners in the domain of CMC, which stands for computer-mediated communication. In the acquiring of L2 word meanings by Spanish students, De la Fuente's (2003) thesis probed significant influences of CALL and in person interactions. To examine both evaluation performance and task participation, responsive, productive, oral, and written methods were used. Interactionist, task-based research has explored possible impacts of meaning negotiations on the creation of L2 vocabulary and the role of the production of pressed performance in the negotiation process.

Existing cognitive psychological comprehension of the vocabulary of L2 laid the groundwork for presenting the results (Ellis, 1995). Jamieson et al. (2004) argued that the CALL assessment should preferably draw on

SLA concepts in the sector. In this review, online courses and tests were carried out using a subset of criteria to test the design of English as a Second or Foreign Language (ESL/EFL). The results revealed that much of the conditions, while others were better than the others, were met.

In another study by Stockwell (2007), literature was examined to explore which technologies are utilized in language skills teaching and various fields. From 2001 to 2005, all scientific research papers appearing in leading English-language publications in the field of CALL were reviewed. It was assumed that a correlation existed between curricular objectives and technology. Three language teachers' assumptions about how learning and language instruction influenced their CALL utilization in teaching in a post-secondary setting were explored in a research paper administered by Kim and Rissel (2008). The information included 6 weeks of classroom and lab observations and teacher interviews. The result showed that their trust in communication influenced their PC usage more strongly than their desire to utilize PC technology, suggesting their attitudes and strategies to language teaching need to be addressed for computers being used more prominently. As a complement to teaching vocabulary acquisition to EFL learners, Tsai and Jenks (2009) examined the impact of a Teacher Driven CD-ROM program. The control and the experimental groups were assigned to participants from two intact classes, and the therapy continued for four weeks. Just two hours of conventional training were obtained by the former party. The same teacher taught lessons with similar content to both classes. The results showed that the experimental group obtained better learning of English vocabulary than the conventional instruction group.

The latest applications of technology to ease the teaching and evaluation of L2 have been explored by Garrett (2009). In her 1991 essay, she addressed the chosen subjects, such as the connection between technology, philosophy, pedagogy, and science. Afterwards, Garrett addressed the difficult problems facing CALL practice and scholarship, i.e., modern language education standards, the urge to reconsider teaching, online learning, teacher preparation and professional development, and CALL study. She came to the conclusion that modern measures are required to increase their technology use for CALL studies and for SLA facilitation, for example setting up a global CALL center.

In yet another review by Garrett (1991), the usefulness of the utilization of the computers to facilitate language learning has generated a problem of considerable concern. Garrett argued that research seeking to address the

question was misdirected because its use of the machine is not a tool of language instruction in itself; its usefulness depends to a great extent on how it is utilized; i.e., what tasks of language learning it serves and how well its use is incorporated toward the school curriculum. In her 1991 report, Garrett (2009) emphasized the superiority and value of teaching methods over technology and, on the other hand, she decided to clarify that any of the three key elements of CALL, i.e., technology, pedagogy, or research, should govern the others. The pedagogical practice proposed in the literature agreed may not be the main determinant of the use of technology. Nor could the SLA's theory be favored in determining CALL, while it plays an enormous role in understanding and inspiring it overwhelmingly.

Garrett (2009) will see in three distinct groupings what CALL is nowadays: demonstration, adherence to genuine content, and contact. By testing the responses of learners against item-specific stored correct responses, traditional grammar CALL produced corrective feedback. Instead of natural language processing (NLP) or Intelligent CALL, existing efforts to improve error diagnostics and advice are based on (ICALL) wherein the syntax rules in a language are placed on the machine and the performance of the learner is balanced using such a parser against them.

A strong collection of causes for rethinking grammar CALL are generated by the specific needs of language education. Some systems are highly centered on the communicative method, still relegating virtually all grammar student work to outside-of-class assignments, directing learners to descriptions of textbooks, and granting form-based drills and practice. Interpretations for textbooks appear to be supplied from a theoretical viewpoint rather than providing a logical, semantic, and communicative framework for realization the type in question (Garrett, 1982), and mechanical drills still are given by homework assignments, whether it is in print or electronic layout. Garrett (2009) described that even though creative techniques of approaching the teaching of form were introduced by SLA instructors and theorists, these were not carried out in CALL.

1.6. CURRENT SLA THEORY AND CALL

While there are myriad theories that suggest the theory of SLA as it relates to CALL, the following subsections focus specifically on interactionist theory as the principal basis of study.

1.6.1. The Theory of Interactionism

In addition to information stimulation through engagement, Mackey and Gass (2006) revealed that conflict theorists demonstrate that learners really want a viable opportunity to seek mental stimulation to be able to better identify verbal communication or performance. The SLA literature also has several studies focused mostly on perspectives of interaction. Hsu (1994) interpreted learners' demands for support as a method for students to remove the shortcomings to understand what they experienced the time communicating with an aural text. Liou (1997) also utilized constructivism declaration as its curriculum design reflected the interaction structure given by Long (1991) from her standpoint.

One of the vital core aspects of the interactionist theory, as Long (1991) demonstrated, is that merely the information that is valued or noted might become productive. This gives guidelines for which should encompass features that improve input through modifications. Chapelle (2003) came across three dominant forms of interaction by looking at Ellis's (1999) work on interaction: interpersonal (i.e., between people), intrapersonal (i.e., inside the mind of an individual), and what exists between a consumer as well as a computer and (learner-computer). Chapelle stressed that even when they press on something like a hypertext link, almost all users use it to get help with comprehension or get dictionary assistance to cause socially interact.

According to Chapelle, one advantage of learner's communication in technology-based classes was that better feedback was received. He noted that scientists today agreed that input incorporation is more efficient than learning generalization because learners are exposed to methods similar to those used by speakers of the language. Chapelle (1999) hypothesized, relying on functionalism SLA theory and CALL experiments, that CALL experiences can be effective for mental function if they prioritize learners' focus on input form, enabling adjustment so that learners may actually pay more attention to appropriate sample and sense in a way that results in self-correction, they focus their attention to the type of their linguistic output (Mills, 2000).

In particular, Chapelle (1989) argued that perhaps the application through interactionist research methodology and philosophy to CALL need an expanding the concept of negotiation of context in different aspects. Next, not only in exchanges spoken facial expressions, but also in written correspondence that takes place over automated features, negotiating meaning must be out there. The next one, which is a more comprehensive

extension of the concept of sense negotiation, is shown when the learner and the machine communicate with the changed one. By providing modified feedback to the learner in need, the computer program established the possibilities for modified interaction.

The data recorded that the learner was actually engaged in updated experiences by requesting and receiving the modified information, i.e., written text and aural reproduction (Chapelle, 1989). Principle and analysis have shown the value of the information language data (Doughty, 1991; Sharwood, 1991) and possibilities for understandable production of performance (Doughty, 1991; Sharwood, 1991; Swain, 1985; Swain and Lapkin, 1995) are essential for procurement. All such descriptive viewpoints often include other observable thoughts and feelings that can be tracked in CALL activities, about whether feedback reflecting applicable linguistic characteristics is shown to educators or whether their verbal output is fixed to make it understandable. Chapelle (1998) noted that the often-referenced research advantage of CALL is the integrated statistical techniques that can record learners' engagement while working on learning tasks (Bland et al., 1990; Doughty, 1992; Jamieson and Chapelle, 1987). Chapelle asserted that any further expertise could assist the scholars with very specific details on the success and experiences of pupils.

1.6.2. Sociocultural Theory

Under the broad definition of constructivism, the sociocultural theory (SCT) is a theory. Constructivism is a philosophy that asserts that through an interpretation of events and their thoughts, people create cognitive structures. It is an interplay between their perceptions and their styles of response to stimuli or behavior. Constructivism, or a novel concept, is not a specific pedagogy. It is a crucial theory of learning processes that educators have been aware of for so many decades at least. For them (constructivists), learning, via social contact with others, is building your own knowledge. It is a thinking process, and learners recognize insight by themselves. The emphasis is placed on the learner rather than just the instructor within such a constructivist framework. Through the same self-learning process, it is the learner who comes into contact with her or her surroundings that acquires knowledge.

A theory established by Lev Vygotsky, a well-known psychologist and social constructivist, is the zone of proximal development (ZPD), which states the comparison between what students get with no assistance and what

they will do with assistance is shown. Vygotsky claimed even numerous students an adult's example and eventually learns the ability, without even any support or guidance, to perform complex things. The notion of ZPD as the distance as established between the current stage of development by actual developmental level as determined and the level of planned improvement as estimated by problem solving with the assistance of an expert or by partnership with competent novices was given by Vygotsky (1978). Socio-cultural theory (SCT) is used by numerous CALL researchers as a potential way to frame and view CALL outcomes (Levy and Stockwell, 2006; Ganem-Gutierrez, 2003; Warschauer, 1996). Also, it is thought that CALL can be analyzed via the prism of SCT. Furthermore, Cardenas-Claros and Gruba (2009) affirmed that CALL can indeed be considered framed by SCT from the novice-expert point of view. In the above-mentioned manner, CALL can be deemed to have been the specialists who have additional knowledge that a beginner would need to understand learning materials. They can demand extra forms of augmented feedback via CALL as learners (novices) encounter problems. When learners are exposed to multiple types of improved feedback, they are likely to successfully manage foreign language task properly.

In addition to expanding and updating the theoretical problems posed by Garrett (1991); Chapelle (2009) contributed to the relationship between CALL and SLA, but also supported an in-depth and comprehensive examination of the challenges. Garrett (2009) urged scholars in the field of CALL to remind themselves and those outside the field that "CALL is not shorthand for the use of technology' but designates a dynamic complex in which technology, theory, and pedagogy are inseparably interwoven" (Chapelle, 2009, p. 719). Chapelle said CALL scholars and designers' pragmatic objective of assessing the development of educational activities encourages them to keep in mind a set of alternative techniques to SLA that have been partially established in regard to a need to conceptualize the position of SLA instruction. Chapelle (2009) contributed to different theoretical viewpoints, consisting of four basic applications, to precisely reflect the connection between CALL and SLA, and they are as follows:

- Cognitive linguistics (the concept-oriented method, independent induction theory, and universal grammar);
- Psycholinguistic theory (interactionist theory, theory of processability, theory of process indicators);
- Human learning (theory of skill development, philosophy of associative-cognitive);

- Language in the sense of culture (sociocultural, complexity theory, conversation analysis, language socialization, systemic-functional).

Chapelle (2009) pointed out that in evaluating and developing CALL content, activities, and functions, the above-mentioned various frameworks can be successful. She noted that the multiple utilization of technology shifts the essence of the theory of language proficiency, challenges the theory of SLA, and raises the number of customers in the field of SLA science. Garrett (1991) referred to the consequence of teaching as it is hardly possible to teach such critical tasks, our mission is to develop a climate in the classroom or in our facilities where pupils can practice to acquire that potential. The strength of technology as a channel for launching a new set of work and tasks in language learning is amplified by its possibility for unparalleled teaching and research implementation.

Garrett (1991) indicated that a CALL course that leads to a situation for some entertaining language acquisition activities and tasks could be equipped with a schedule that collects information on how the students use those contexts, and "these data can not only provide feedback on strengthening curricula, but it can also promote the growth of second language acquisition (SLA) theory (p. 94). The social constructivist philosophical perspective and perhaps even the sociocultural theoretical model of SLA were examined by Chapelle (2009) and showed that socio-cultural and interactionist techniques hold similar areas of interest since both approaches concentrate on the importance of interaction in the acquisition and development of languages.

1.7. A TECHNOLOGY-ENHANCED LEARNING ENVIRONMENT FROM CONSTRUCTIVIST VIEW

After all, the brief overview of utilizing information technology (IT) in EFL teaching has lead us that hardware and software alone do not fundamentally teach learners to be critical thinkers (Golonka, Bowles, Frank, Richardson, and Freynik, 2014). In order to turn technological instruments and devices to mind instruments to engage in learning theory, it needs to take a considerate implementation of learning theory to deep thinking (Jonassen, 2000).

Problem-based learning (PBL) is used as a good educational model to integrate theory with practice, as endorsed by constructivist scholars (Dewey, 1938; Piaget, 1972; Vygotsky, 1978; Savery and Duffy, 1995). Originated by Barrows (1996) in the case of health education, PBL has been implemented in various colleges and aspects. PBL tends to focus on the constructive

norms of critical thinking, communication, autonomy, personal, and social relevance, all of which are required in the implementation of research skills for learners. In addition to teacher-centered problem-solving with a specific question or subject, and from PBL with an optimal result with instructors offering professional guidance, PBL assists students to manage studies, to incorporate research and to implement skills and experience to create a satisfactory result to a specific problem of their very own choice (Norzaini and Lin, 2012; Savery, 2015). The problem is a major problem in the context of language research learning that learners realize in their daily routine and consider to resolve in the PBL model along which they establish innovative skills in a research. PBL research has managed to accumulate significant evidence of its effectiveness in encouraging self-directed continuous improvement, critical thinking, and language learning over the past 30 years (Allen and Rooney, 1998; Hung, Jonassen, and Liu, 2008; Othman and Shah, 2013). An essential checklist for uncovering PBL experiences seems to provide this three-phase conceptualization.

In addition, to expedite the process, PBL needs a thorough model of a constructivist learning environment (CLE). CLE is an atmosphere and context, as defined by Wilson (1996), where learners sustain peers' rapport and build up information by utilizing knowledge assets and several instruments to overcome a true problem. Among different kinds of CLE models, Jonassen's (1999) CLE design model appears best to accommodate PBL in that "the primary goal of the CLE is to foster problem-solving and conceptual development" (p. 216). Although three-phase PBL process model clearly portrays the process for formulating the core problem (the actual problem learners want to address), the CLE model of Jonassen offers a theoretical environment framework for the PBL project to proceed with data resources and cognitive tools, social, and contextual assistance, and educational support.

PBL may be one of the teaching and learning strategies in CLE in this context (Savery and Duffy, 1995). There has been a great deal of concern in the efforts of CLEs for PBLL over the last 30 years (Hung et al., 2008). Records suggested that the important capacity of CLE to develop research skills and critical thinking was significant (Kwan and Wong, 2015; Tan and Hung, 2007; Tunca, 2015; Vidergor and Krupnik-Gottlieb, 2015) through constructivist programs (Ernst and Monroe, 2006; Sendag and Odabasi, 2009) and teaching methods or e-resources (Ware and O'Dowd, 2008; Sanprasert, 2010; Yang, Newby, and Bill, 2005).

Chinese university teachers have also begun to incorporate technology into EFL initiatives for task or project-based learning (Gu, 2007; Gu, Zhang, and Gu, 2010; Gu and Xu, 1999) and web-based interaction, influenced by the academic discourse and desirable government (Sun and Chang, 2012; Zou, Wang, and Xing, 2016). The interrelationships between competencies for environmental projects and research competencies are also evolving (Lambrechts and Van Petegem, 2016) and research competence studies of university learners, including the current evaluation model construction (Beottcher and Thiel, 2017). It is observed that Wang and Chen's (2008) have a subsequently subjected specialized model of research capacity (research design, problem understanding, knowledge literacy, and reasoning) for the emphasis on the stages of learning a language that links the needs and those of the participating learners.

Earlier studies have considered the effects of technology-supported CLEs on the development of research skills, yet very few is involved with the near association between CLEs and the description of research skills in the socio-cultural context of China; even fewer evaluate the experience of the learner by using qualitative methods (Levy, 2015). Experiments have also proposed that learning methods centered on constructivism are relational which in comparison to earlier cultures of learning focused on conflicting pedagogies and philosophies (Porcaro, 2011). This is especially true in China, wherein modern activities, such as technology incorporation in classes, a particularly Chinese world view with an emphasis on unity and Chinese cultural values in terms of learning, teaching, and awareness (Hu, 2002; Jin and Cortazzi, 2006), all exert a strong influence (Hu, 2002; Midgley, Gu, and Campbell, 2000).

1.8. CORRECTIVE FEEDBACK AND CALL

Indeed, corrective feedback has been declared to have a significant factor in promoting the enhancement of specific grammatical L2 forms, which can be difficult to master exclusively from input. Corrective feedback may be utilized to attract learners' attention to inconsistencies between both the target speech acts and learners' performance (Sauro, 2009). Lyster and Ranta (1997) supplied categorizations of corrective feedback as continues to follow:

- **Explicit Error Detection:** Explicit target-like new provisioning for formulation. For instance: You should say visited;

- **Metalinguistic Feedback:** Remarks, questions or details relating to the utterance's ill-formedness. There is a failure, for example. The tense is past. Did you just use tense of the past?
- **Elicitations:** A stimulus to be reformulated by the learner. Try it again, for example. How can we express it in the tense of the past? Ok, yesterday we…;
- **Repetitions:** of a mistake in certain or a part of the utterance, frequently followed by a change of intonation. For example: visiting my aunt yesterday*;
- **Recasts:** Implicit formation of all or a section of the utterance of the pupil. For example, we visited my aunt yesterday;
- **Translations:** The localization of the target language for inappropriate use of the L1; and
- **Demands for Clarification:** An utterance that indicates a problem of interpretation, consistency, or both.

It is mandatory to clarify the effects of corrective feedback in promoting the learning of the L2 language via CALL while exploring the relationship between CALL research and L2 teaching. Since corrective feedback has indeed been known to be a form of conscious awareness (Lightbown and Spada, 1990; White, Spada, Lightbown, and Ranta, 1991). Nagata and Swisher (1995) believed that through intellectual corrective feedback, the machine would provide the personalized consciousness-raising. Traditional CALL feedback highlights an incomplete or inaccurate word for the user, while intelligent CALL feedback moves well beyond basic error notice and offers comprehensive meta-linguistic descriptions of the sort of mistake. Doughty (1991) described stages of conscious awareness, spanning from straightforward descriptions of the law to cases linked to a demanding form.

Nagata and Swisher suggested perhaps the broad scope of conscious awareness strategies be integrated into CALL. Another study by Heift (2004) explored the effects of corrective input in CALL on learner uptake. In the analysis, learner retention was described as student responses to corrective feedback in which learners failed to justify their errors in the event of problems. 157 pupils from 3 Canadian universities. Kim's (2009) research explored the efficacy of the types of feedback that differ in their explicitness in a technological context, as well as adaptive feedback delivery methods centered on the output of learners. In the scope of an instruction to help skilled students minimize over-passivization errors in academic writing, both problems were investigated. The results indicated that of all the types of

corrective feedback supplied (traditional, prompt, contrasting, and adaptive), its most effective feedback mode popped up to be the contrasting type of feedback containing a functional framework for increasing the adult Korean ESL learners' ability to identify and correct over-passivization mistakes.

Rosselle et al. (2009) devoted to the analysis attained from an experimental investigation on the efficacy of feedback in a virtual learning context. Surveys and syntactic tests and post-test introduced an additional perspective into the objectives of learning and the responses of learners relevant to the multiple types of feedback. Roselle et al. (2009) deduced that, coupled with reasonable information processing, quite explicit feedback resulted in more positive perceptions of students and better results in learning.

Multiple online grammar activities and assignments often provide interactive feedback that allows learners to think about their reactions. These practices allow learners to realize why the responses are inaccurate or correct. These activities not only identify learners why a response is incorrect or correct, but also give rise to a deeper grammatical structure realization as they are motivated to examine, consider, and determine the orientation of their learning (McIsaac, 1999; Milton, 2003). In addition, plenty of grammar online sites offer learners with great commitment for extracurricular activities. This involves critical criticism that is considered significant in grammar instruction (Ellis, 2002).

1.9. ENGLISH LANGUAGE CLASSES AND THE UTILIZATION OF TECHNOLOGY IN EDUCATIONAL CONTEXTS

For learners, technology is proven to be an appropriate method. They have to utilize technology as an impactful part of teaching and learning. Instructors may prototype the utilization of instructional processes in order to enhance the actual use of technology by learners to learn L2 skills of a language (Costley, 2014; Murphy, DePasquale, and McNamara, 2003). Through technology, learners' collaboration may be improved. Collaboration has been considered as one of the significant instruments for language learning (Keser, Huseyin, and Ozdamli, 2011). Learners work collaboratively to make activities and to learn from peers by practicing the tasks of other students.

Some scholars acknowledged that the computer technology's use tends to lead to improving the teaching and the learning of students in classrooms

(Bennett et al., 2000). Using computer technology allows educators to fulfill the educational learning objectives. The use of computer technology, as asserted by Bransford, Brown, and Cocking (2000), allows learners and teachers to create large and small communities that link them with others and enlarge their chances to learn. They asserted that computer technology's detrimental effects do not happen easily; it is dependent on how educators utilize it in their courses.

As stated by Susikaran (2013), in addition to the teaching techniques, primary changes have been made in classrooms attributed to the reason that the teaching style of chalk and talk is incomplete to instruct English productively. Raihan and Lock (2012) said that learners participate in class effectively with a well-planned classroom background. Technology—the improved context of teaching is efficient for the lecture-based class. Even though they did not learn technology and are not eligible to utilize it the same as a computer engineer, teachers need to find condition monitoring technology as an active learning strategy for their learners.

The implementation of technologies has transformed English teaching methods noticeably. This offers many alternatives to make teaching more fascinating and profitable in terms of growth (Patel, 2013). Teachers stand there next to learners in traditional classes and give talks, explanations, and instruction by using whiteboards and blackboards. With respect to sustainable development of technology, these methods must be modified. In classes, the use of multimedia texts helps students to become acquainted with language structures and vocabulary. The application of content creation also uses print, film, and internet texts to enhance the linguistic ability of learners. The use of the internet provides individuals with opportunities to gather data and allows them to various materials both for context and language interpretation and analysis (Arifah, 2014). Dawson et al. (2008); and Pourhosein (2014) argued that the use of technology can build a positive learning environment concentrate on the learner rather than just the teacher that generates positive changes in turn. They concentrated on the language class becoming an active room filled with substantive drills and assignments where the learners are engaged in the learning process by using computer technology. Drayton et al. (2010) maintained that the use of computer technology reveals a realistic learning experience that strengthens the obligations of learners.

Technology allows learners to understand and to develop responsible habits independently. The autonomous use of technology gives consciousness

to learners. According to Arifah (2014), the use of the internet increases the motivation of learners. The use of such film in teaching allows students to enthusiastically embrace the subject and improve their awareness. The time technology is being utilized in the classes via the use of the Internet and computers, learners can learn profoundly. The time the students work with software, it enables them to improve their thought abilities. It can be inferred that the genuine mixture of interactive and teaching methods is of great importance in attracting the attention of learners to learning English.

1.10. BENEFITS OF TECHNOLOGY IN ENHANCING SKILLS OF A LANGUAGE

The use of technology has increased the focus and concentration of learners. Technology provides target language input, output, and feedback to language learners; it also provides an effective way for teachers to accumulate content for the course and interact with several learners. In any event, the use of technology is welcomed, and educators may modify their teaching duties and alter their teaching techniques to make the most efficient use of existing resources. With the use of technology to aid language learning and teaching, we urge caution. When technology is being utilized to enhance learning and teaching, the focus should be goals instead of technological means. In order to highlight the benefits of technology and minimize its drawbacks, learners or teachers should refer to the technical manuals and learn from experiences gained in related literature.

Some research has suggested on the negative effects on the well-being of learners from the use of technology, such as negative feelings, physical distress, and cognitive effort. Zhonggen cautioned that if they play learning games for too long, students can feel nervous, which may pose a risk to learning usefulness. Learners in Gao have long been worried about using social networking sites (SNSs) as it could affect their eyes. In addition, after using social networking or playing games for such a long period of time, it is likely that they will be addicted. Internet bullying was also one of the topics that students were presented with. As a result, training learners to be vigilant not to become addicted and teaching them how to manage their use of technology is mandatory.

Learners, regardless of their skills, have certain technical issues when using technology. If timely and reliable help is not given, then it is likely that learners will have negative technology expectations and waste their time. Thus, it is important to provide immediate input when experiencing

technical difficulties. In addition, in order to use it for learning more efficiently, learners must be given ample time to practice on the technology to know how to handle it properly, as well as its drawbacks and advantages.

While perfect technical precision is required, it is difficult to achieve. Huang et al.; McCrocklin, and Shadiev et al., for example, stated that the overall accuracy of speech recognition during the learning process is a critical problem. If the output produced by recognition systems is not sufficiently accurate, then it is not productive for learners and is worthless. As a result, it is proposed that recognition approaches should have to be learned and that appropriate methods need to be used during the process of recognition. Levels of learner proficiency often need to be kept in mind during technology-supported learning processes. For example, learners ought to be put in charge of what level of learning curriculum to use those best suits their level of competence. Alternatively, for learning, learning material can be either too easy or too difficult and unsustainable. The adaptive caption screening method was suggested by Hsu, and it was useful in improving listening skills because learners could select different quantities of information with a distinct number of levels of difficulty.

Also, it is recommended that L1 and L2 captions should be given in varying quantities during films, lectures, and scholarly talks to fulfill the demand of language learners at different levels. It is found that low-level learners use their L1 to take notes while learners use annotation resources and may be able to successfully use L2 definition links for word memory and learning with their proficiency growth. For some researchers and practitioners, some technologies, such as virtual reality (VR) hardware support and devices, are also still costly. Maybe it is possible to search at any other substitutes, for example, VR can be created by some inexpensive instruments such as Samsung smartphones.

Some work has been performed on the benefits of using technology and learning to teach English. Hennessy (2005) said that the use of ICT serves as a tool for inspiring learners and teachers to work in innovative ways. The study showed that educators feel that as students tend to be more autonomous, they urge and encourage their students to think and act independently. CALL execution alters learners' educational perceptions and increases their personality (Lee, 2001). Information and communication technologies (ICTs) are helpful for the field of language teaching and learning. Initially, educators have a key factor that can assist them maintain data. Second, more information is included in follow-up conversations where learners will become more independent. Eventually, students can

deal with modern methods of instructional materials and improve their main skills in a language (Costley, 2014; Tutkun, 2011). The technology use has shifted from teacher-centered strategies to learner-centered ones. Teachers are considered to be mediators and direct their learners' learning, and to improve their learning, this move is really beneficial for pupils (Riasati et al., 2012). Gillespie (2006) asserted that the technology's utilization improves the engagement of learners in learning tasks. It allows them to obtain data and connect with resources.

Two features on how to incorporate technology into the class were defined by Warschauer (2004). Initially, through the use of cognitive perspective, learners are given the ability to dramatically boost their focus on the target language and build their awareness. Secondly, in the social approach, learners must also be exposed to more chances for genuine social experiences to exercise their daily-life skills. This goal can be accomplished via the cooperation of students in tasks and operations. Eaton (2010) announced that an important function for language learning is computer-based communication. Computer-assisted debate has a higher degree of involvement than interactional debate.

Zhao (2013) endorsed the previous perspective and also argued it is important for effective language learning to access authentic materials in the target language. Rodinadze and Zarbazoia (2012) said that because of its easy access, technology assists instructors and pupils research the course materials. Technological advances play a prominent part in preparing students to use what they learn to make their mark in the world's labor force in any subject. Technology promotes the learning of learners and acts as a true medium of education that enables learning to take place. An analysis was carried out by Baytak et al. (2011) on the effect of technology on language learning.

The findings demonstrated that the learning of learners was created by incorporating technology into education. Learners said the use of technology makes learning fun and lets them learn more at school. Students have also argued that technology leads learning to be entertaining, exciting, and pleasant. The other result was that the technology utilization enhances interactions among the learners in educational contexts, the encouragement and participation of learners. Mouza (2008); and Sabzian et al. (2013) reported a significant increase in collaboration between teachers and learners is one of the results of just using technology in the English classroom. This will boost the confidence of students the time the instructors permit their

students to become as assistants in their teaching in classes. Learners are given the opportunity to strengthen already acquired skills and viewpoints. Due to the fact that learners have had enough time to master technology while teachers focus on guiding the teaching, learners will assist teachers in technology integration.

Drayton et al. (2010) have highlighted that the use of CALL in a classroom reveals a genuine learning environment that enhances the accountability of learners. Teachers have argued that the internet and e-mail promote learner-centered learning. Warschauer (2000); and Parvin and Salam (2015) conducted a research and confirmed that learners have the ability in order to heighten contact with the target language in a manner by using technology and to build their own information. To practice real life skills, learners should have chances for interpersonal relationships. This is achieved in actual activities and assignments by learners' collaboration.

A report on the effect of technology on learning was conducted by Baytak, Tarman, and Ayas (2011). The study's findings showed that students strengthened their own learning by integrating CALL into their classrooms. The scholars concentrated on technologies that make learning exciting and engaging for learners and enhanced their enthusiasm, interpersonal relationships, and participation. A report on the use of technology in improving the writing and reading skills of learners was carried out by Peregoy and Boyle (2012). The results showed that technical resources strengthened the writing and reading skills of learners due to the fact that they are user-friendly, and students can learn quickly and effectively. The other finding was that by using technology tools rather than just conventional teaching methodology, learners learn more efficiently because the internet offered a pleasant learning background for learners' learning.

Alsaleem (2014) conducted another study on the use of WhatsApp applications in English conversation journals to develop the speaking, writing, vocabulary, and word choice of learners. According to the findings, he came to the conclusion that WhatsApp showed gains in the abilities of students to speak and write, vocabulary, and word choice. A research on studying the commitment and motivation of learners in the classroom was conducted by Godzicki, Godzicki, Krofel, and Michaels (2013). The conclusions derived showed that learners were more inclined to interact in classes when technology was used within the classroom as an instructional tool. Technology resources suggest growth when it refers to encouragement and functionality. Finally, Lin and Yang (2011) did a comprehensive research

to probe whether Wiki tools can boost students' skills in writing. Learners were expected to enter a Wiki page to write texts and then read and respond to their fellow classmates' passages. Learners showed that an advantage of using this form of technology was the instant input they got. The second research finding was that, through practicing peers' work learners studied sentence structure, vocabulary, and spelling.

1.11. CALL AND SELF-REGULATION LEARNING (SRL)

Self-regulation learning (SRL) is considered as a positive and active mechanism, according to Pintrich (2000), in which students can adjust targets and observe and regulate actions, awareness, and also encouragement. Zimmerman (2008) further describes it as a process of self-direction, as self-beliefs help learners convert their academic potential. Winne and Hadwin (1998) concluded that there are four stages of SRL:

- The job description;
- setting goals and strategies;
- Tactics of enacting; and
- Metacognition adaptation.

Therefore, learners are expected to evaluate the context of learning and identify activities, set the correct learning objectives, start planning and then choose the successful SRL.

It has been shown that the SRL is an important ability in computer-assisted environments for performance. Nevertheless, for reasons such as inability to monitor metacognitive processes, lack of good use of technique, lack of metacognitive knowledge, or shortage knowledge in educational contexts with various frameworks, learners do not always effectively regulate themselves. Therefore, in the field of educational practice and research, how to develop SRL capability has become a critical condition. To promote the learning of SRL skills in computer-based courses by learners, resources which control the SRL of learners are imperative.

Self-reported techniques have been used in most SRL experiments, and are not only invasive, but often restricted to documenting self-regulated activities in computer-assisted contexts. According to Pardo (2014), though, as pointed out earlier, this problem can be solved by using online driven educational contexts.

1.12. ANALYTICS OF LEARNING FOR SRL

SRL is considered as "a behavioral manifestation of meta-cognitively driven motivation (p. 17)," as Winne and Baker (2013) stated. As a consequence, a motivated option on how to study is documented by each trace. The effect of using learning analytics (LA) has been characterized by various in terms of analyzing the performance of online courses. Such results suggest that active engagement is important for effective online learning.

In addition, a few studies by Cheng and Chau (2016) have addressed the quality of teaching and learning rather than the amount of participation online. In particular, the timing factor of access to 36 online lesson materials interested Asarta and Schmidt in particular. The consequences of timing, length, strength, and quality of access to achievement were checked. They suggested that keeping in line with the educational program, reviewing the materials without trying to cram in a test, and being exposed to authentic materials consistently are key attributes for success. Such studies claim that unique aspects of learning habits should be properly considered, rather than necessarily the frequency of access.

In spite of a growing number of studies examining the understanding of online interaction to help learning in online contexts, very little is recognized about how conscience learning can be assessed and the impact on the success of the course can be explored. However, a rather more difficult task has been investigated by Roll et al. (2014) to analyze and interpret the characteristics of policies, behavior, priorities, and regulations more generally. The first step to resolving this challenge is to establish measures of self-regulated learning. Aggregating and collecting significant indicators can facilitate the recognition of the sustainable development efforts of learners and provide relevant feedback.

1.13. CALL AND ITS SUCCESSFUL INTEGRATION IN CLASSES AS RECOMMENDATIONS

Some useful suggestions for students to develop their language skills by utilizing CALL are kept in mind in the last section of this chapter.

Teachers should adopt a technology strategy that, along with making decisions, incorporates new technologies. In particular, instructional design should be taken into consideration in order to ensure the learning of learners and to shift the behaviors of teachers concerned with the benefits provided by technology. It is important to match the technology plan consistently

with the requirements of the curriculum. Teachers should understand what the most effective instructional strategy is when classroom innovations are implemented (Pourhossein Gilakjani, Leong, and Hairul, 2013).

Language instructors must play the role of a model for their students to use CALL (MEB, 2008; Pourhossein et al., 2017). Technology-integrated lesson strategies should be developed by educators. Such lessons should focus on the process of their language teaching and learning, not just on problems with technology. Instructors need to look for modern methods in which social media can support them with learner-centered teaching rather than teacher-centered teaching.

Technology in language classes is highly important and necessary aspect of the language learning process by which language skills are passed to the students. In improving their language skills, instructors have a significant role in motivating their students towards using CALL in their classes. As an integral part of programs of the teaching and learning, institutions accept technology. For instructors who utilize it to teach their classes, technology scholars and practitioners can provide further support.

Teachers should be mindful of their positions as mediators of the learning of their learners and guides. In order to promote the introduction of technology, teachers should be provided with adequate technical aid and encouragement. For learners to evaluate effectively how to use and teach it, training should be offered. In increasing their language skills, teachers allow their students regarding the utilization of technology. Teachers should ask for advice from their superiors who can support them with the use of technology to teach better. Technology, indeed, is one of the main components of language learning; it is a great aid for students to develop their learning skills (Molaei and Riasati, 2013; Pourhossein Gilakjani, and Sabouri, 2017).

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Chapter 2

Critical Look at Mobile Assisted Language Learning

CONTENTS

2.1. INTRODUCTION

We are now living in a world so fascinated by pace. One of the greatest describing values of our lives is speed. In the field of telecommunications, technological developments are further pushing the pace. The widespread presence of this relationship has pinched the worldwide attention of teachers. Here sense, researches of language are special beneficiaries of this. As the language usage is free of place and time restrictions, it is fair that it should be free from those restrictions, too in its teaching. Cell phones provide such an opportunity to learn language anywhere, at any time. The general improvements in worldwide connectivity are the key explanation for introducing technology into education. What was once unavailable can now be easily accessed through the internet. Technology opens doors to many more possibilities by bringing the world together. The old days of limited educational options are long gone and all thanks to technical advances.

In online education, students not only have mobility, they also have access to more resources. Nowadays, computer and mobile technology have remained increasingly combined into acquiring. The extensive usage of computers, mobile, and additional wireless applications have wireless tool has greatly changed the way knowledge is learned in several environments, counting education languages (Kukulska-Hulme, 2009). Many phone apps or applications have been created to promote various listening, reading, writing, vocabulary, and grammar as components of second/foreign language learning. Though these applications are undoubtedly appealing to learners, usually with sound, images, and interactions, it is never possible to overlook the L2 pedagogy underpinning these resources and activities.

No one would argue that the world is mobile as a whole. The ubiquitous possession significantly, mobile, and other moveable and wireless appliances have affectedly altered the intellect, networking, and behaviors. The use of these mobile technologies is well connected educational priorities, such as widening learning experiences, enhancing student success, with instructive aims, for example spreading education chances, increasing learner accomplishment, fostering distinction between acquiring wants, aims, and education methods, and providing dependable learning resources to students who could not then have contact with mobile technologies.

A popular technique for language learning is now mobile-assisted language learning. Through the growing of Wi-Fi networks and the proliferation of phone devices, people can communicate using mobile devices, and using mobile devices to learn languages has become more

prevalent (Kukulska-Hulme, 2012). Because of the development of the internet and mobile devices, mobile learning services have moved from paper-based materials to technology. In the digital era, the success of mobile-assisted learning cannot be underestimated, and a significant number of people learn a foreign language. Increasingly, mobile technologies draw new buyers, deliver more power, and encourage more sophisticated use. This impacts social values and provides novel situations for education.

The incorporation of such technologies into instruction and education has been further softly, as teachers want to comprehend how to use them efficiently to reinforce different modes of education (Kukulska-Hulme and Shield, 2008) and to establish active MALL or mobile-assisted language learning methods and materials, a specialty of mobile education (m-Learning). Ogata and Yano (2005) state that the main characteristics of cell phone education, such as permanence, availability, imminence, collaboratively, and location of educational practices, are summarized and implemented. Although definitions differ, not only for technology but also for individuals, it is obvious that it can be mobile.

2.2. MOBILE-ASSISTED LANGUAGE LEARNING (MALL)

The increasing availability of mobile technology has contributed to an increase in mobile-assisted language learning, in which students can independently study a L2 at any time or anywhere. The word MALL developed by Chickering and Ehrmann (1996), has more recently remained connected with mobiles. By accessible link, processing capacity, and enhanced information storing and recovery capabilities, these phones offer a better learning platform. According to Kukulska-Hulme (2009), since the mobiles are small computers that surpass laptop computers with an additional portability advantage. In essence, this technological leap from lap to palm has given teachers and their students a conceivable linguistic studying instrument in the accessible of the learners. People's livings have deep roots in machinery and the internet. The majority of respondents held the same view (Jarvis and Achilleos, 2013). Palalas (2011) states that mobile is going to deliver engaging, stimulating, and encouraging learning opportunities. Learners benefit from these possibilities for cell phone equipment, so learners will engage with all friends to accomplish studying experiences. Park (2011) declares that starting the perspective of contraction space, smartphones often contain a benefit. Teachers should introduce

learners to an education situation in which they arrange original support and therefore slowly remove help so that learners can take care of their studying. Jarvis (2015); and Mayer (2003) assert that mobiles may existent powerful multimodal studying materials. The assessment of some experimental plans in emerging nations has verified the potential for guidance to be provided by mobile phones. They have the capacity to help construct a conducive atmosphere for a variation of studying situations, for instance, official and unplanned education (Valk, Rashid, and Elder, 2010).

2.2.1. Definition of Mobile-Assisted Language Learning

As stated by Valarmathi (2011), the word "mobile" stands for "mobility" or the opportunity to travel from one location to another freely and easily. Mobile learning in every branch of research relates to the application of mobile devices. Aspects of cell phone equipment, for instance, movability and availability of content, play a main part in enhancing English language education. Cell phone studying may be parted into:

- Mobility of technology;
- Mobility of learner;
- Mobility of learning.

As Guo (2014) claims, Mobile learning improves the flexibility of students. Learners may be engaged in more versatile, open, and customized learning activities with portable and personal mobile devices without restrictions on locations. Mobile learning improves the learning process's mobility without time limitations. Flashcards are a common method that also now has a cell phone equivalent for learning vocabulary. The effectiveness of using conventional, manuscript-established cards with the usage of a mobile application for internet or numerical cards was compared by Azabdaftari and Mozaheb (2012). Numerical cards possess the benefits of support for software, for example, aural records in addition to manuscript or images, and may track and supply the student's development. So, these kinds of cards become available more than an assembly of countless written flashcards for learning a great quantity of words.

Taj (2016) studied the influence of MALL on English Foreign Language as a meta-analysis study and selected 15 researches, but two researches were abandoned due to widely contradictory answers. Glass (1976) identified the essential for such a sort of research. There is an increasing amount of information collected individually in investigation papers that has assumed growth to the necessity to collect this proof and to perform knowledgeable

review of whatever has previously been learned. MALL is a comparatively new arena that can take improvement of the form of study performed in the meta-analysis. Interesting information was provided by an annotated index compilation (Burston, 2013). In several types of journals, the unpackaged of investigation on MALL has been printed, however merely 10% of investigation is documented in Call Assisted Language Learning papers. The lack of a committed journal from MALL makes the meta-analysis researches very useful.

Taj's meta-analysis testified that about 31% of the researches were published in 2011. In the countries where these studies were commenced, Iran topped the list. Nearby 38.5% of studies were carried out in Iran, charted by about 15.5% in China and Korea. Clearly, no research from an English-speaking country was published. Around 61.5% of researches consumed investigator-completed or non-consistent information-gathering methods, while near 38.5% of studies used standardized appliances. All studies except one utilized cell phones by way of the medium for delivery of content in the meta-analysis. The select for app of delivery of studying material was almost 65.5% SMS, trailed by around 30.8% committed applications. The sample size ranged from 30 to 50 subjects in around 54% of the studies. There was a sample size of 100 to 200 subjects in one study. Most research 84.5% had a period of treatment of 1 to 10 weeks. Just one study had a treatment span of six months, with 7.7% of the research involved in the mentioned meta-analysis. In these studies, the majority of subjects were sophomore students, around 54%. They were at colleges in their first or second years. Just one study had 5th grader subjects at 7.7%. In about 93% of the research, the target language area was vocabulary. Grammar was only targeted by one report.

MALL has come a long way from the first use of the word by Chinnery (2006). The overall findings of the Taj's (2016) meta-analysis indicate that cell phone interference leads to English Foreign Language studying. Parallel finding has been informed in several studies such as Miangah and Nezarat (2012) and Lim Abdullah et al., (2013). MALL study seems to be in confusion since it appears to exist no specific bulletin and monthly for MALL researches. Most writings originate from the proceedings of the conference (Burston, 2014). As is evident from the meta-analysis study, vocabulary learning is the key subject of some studies such as Duman et al. (2015); and Kim and Kwon (2012). MALL is a significant device for word teaching, especially in EFL settings, in view of the significant importance of vocabulary. The research appears to reinforce the opinion that cell phones,

with the growing ability to offer relatively in a universal situation, maybe consumed as operative devices to convey language studying gratified. It is also discovered that mobile doings were primarily focused on sophomore student activities. There was no trend noticed about the age of the learners to suggest that MALL intervention is beneficial only for some age groups. Regardless of their age, it has been found effective with students.

2.3. MOBILE LEARNING (M-LEARNING)

Gafni, Achituv, and Rachmani (2017) state that the ability to learn independent of time and place is mobile learning (m-learning). Mobile learning has been realized to be productive in increasing instructive finding since it increases the capacity to obtain teaching and stimulate acquiring, that remains individualized, engaging, and universal and wherever the student is at the heart. According to Viberg and Gronund (2013); and Gafni (2009) assistant m-learning internet and machinery requires all kinds of small portable electronic tools, for instance, mobiles, computers, wireless individual supporters, laptops, etc. As stated by Bachore (2015) availability, spontaneity, and interactivity are the main features of mobile learning. Availability applies to the degree to which any student possesses a cell phone means. Several students already have this technology worldwide. Anderson (2015) states that 68% of American grownups owned a mobile, and 45% had a mini laptop consistent with the PRC or Pew Research Center in 2015. In addition, about 86% (aged 18–29) of younger adults have a smartphone. However, it is essential to note that in the developing and rising globe, Internet penetration rates are still trailing those of advanced economies. In fact, learners can be linked where technology is available, and they may expand their own ability to acquire omnipresent. M-learning uses various types of software that are available on mobile devices to create an immersive learning environment.

Three factors have been identified by Lominé (2009) that need to be addressed while realizing a mobile learning tactic: education, finances, and machinery. Before any experiments are started, the pedagogy must be explicit. It is also essential that this is the driving force rather than the machines. Economics is the field that all of these studies tend to ignore. How much will it expense for the professor and the learners and dose it exists very economical than renewable knowledge machineries? In addition to the economic price, there can be a great corporeal and emotive expense for those concerned if it is not properly examined. Finally, the program

needs to be deliberated cautiously. Additionally, empirical proof of mobile devices enhancing the subject skills of students remains difficult to provide. Instead, several researchers have concentrated on the attitude of learners to mobile learning as an indicator of their performance. In a study by Kutluk and Gülmez (2014) the approaches of accounting students to the usage of cell phone learning applications were examined. In their accounting lessons, about 343 learners involved in the research did not use to formally consume cell phone tools, but the commonly held an optimistic approach about consuming mobile studying and expected it would be easy and fast to use mobile technology for exercise or research. The learner's approaches and outlooks of the usage of mobile studying to acquire French and tried earlier and afterward the usage of m-learning equipment to assess improvements in student achievement were analyzed by Jaradat (2014). The 36 female learners who participated in the research around two courses used mobile studying in and out of the class. Investigation statistics obtained in both formal and informal settings on attitudes to learning French and the utility of cell phone devices were improved through information from 10 discussions with accidentally chosen community memberships. The results of the study showed that 76% desired to take their French educations via cell phone instead of on a computer or inside the classroom. About 90% assumed they got pleased with the usage of mobile learning and 91% assumed they planned to carry on learning French consuming it. The students saw the usage of cell phone devices as enhancing contact between the classroom and the teacher inside the classroom. The findings suggest that m-learning can be used as an effective method in this situation, if not generally an efficient one.

According to Chinchole (2019), we live in an age of Information Communication Technology (ICT) that has taken charge of almost every area of study in human affairs and discipline. New pedagogical approaches and activities such as Smart Classrooms, Digital Schooling, and Online Learning, etc., have been born of this ICT, taking a big step towards a really learner-centered education. For both teachers and learners, the Digital or Smart classroom offers a broad scope to make teaching-learning more efficient, insightful, and even enjoyable. Language Labs and Language Learning Software have also verified to be highly effective and important in terms of language education, especially in FLL and SLL. Of all these, mobile technology, representing a groundbreaking approach to education, is the most enticing technology. Without the limitations of both location and time, this modern language learning approach offers convenient access for any learner. For mobile learning, language learning tools, for example,

mobile, iPods, tablets, and laptops are used. For those studying ESL, various applications have been built and used.

Chinchole (2019) notes that not only does the successful application of new technology in educational and pedagogical practices encourage the standard of teaching, but also motivates students through innovative and attractive modules of learning. The proper use of mobile-related technology in and outside the class improves the process of teaching and learning and allows students to further understand the language by developing information and awareness with added interest. The learner only needs a basic level of experience and ability in the handling of technology and devices. In addition, a small portable computer that holds a large amount of attractive and motivating learning materials is simplified to the load of books, notes, manuals, etc. Unlike conventional and even some new teaching-learning approaches in the classroom, this modern technology has abolished all significant time and place constraints, paving the way for learners of all age groups to have more personalized, coordinated, and interactive learning experiences.

Chinchole (2019) mentions that one of the most significant factors in the popularity and performance of mobile-assisted language education is the accessibility of small mobile electronic devices. In particular, this offers cheaper and broader opportunities in language pedagogy in a large and developing country such as India. MALL promotes the learner-centered and personalized method of learning English as it is up to the learner how to use cell phones and other portable electronic learning devices, when, and to what extent. In comparison to conventional FLL and SLL methods, as well as modern interactive boards and digital classrooms, it also allows the learner the freedom to choose location, time, and learning goals.

Chinchole (2019) tries to explore the benefits, opportunities, and challenges of MALL in the middle and rural Indian background. The diffusion of technology and the internet should be assisted by the sufficient level of expertise and skills necessary to operate technological equipment for learning purposes. Taking these surveys into account, the situation in India, especially in urban and semi-urban areas, should be kept in mind. On the other hand, payable to the lack of elementary infrastructure and connectivity to this fresh technology, the situation in rural areas is not very satisfying. In order to expand the reach and range of mobile-assisted language learning, there is an immediate need to improve the required infrastructure to include more rural and remote areas in this new technology mainstream.

Lenci's (2020) thesis presented an overview of language acquisition technology, both from a historical and typological point of view. In addition, the author has discussed how to use technology effectively to facilitate language education Her focus has been on the most widespread technology of today, such as computers and mobile devices. In reality, one of the key challenges of this study was to find real resources and tools to illustrate how computers and mobile devices can be used in the process of language acquisition. Lenci argued that the survey indicated that mobile devices, especially smartphones, are used for language acquisition. Even though many features are provided by mobile devices. They are used for listening, reading vocabulary, and grammar exercises in particular. It is still not very common to use mobile devices for communicative tasks, including writing and speaking. Mobile devices are, in other words, used for passive and routine operations and rarely for communicative activities. Language learners, in addition, prefer free tools, which should also be well planned. While the thesis emphasized the ease of portability, most of the time, language learners' study at home with mobile devices. That implies that the min circumstances such as being a commuter on public transport or waiting for a lecture are not abused. In addition, mobile device research takes place less than once a week, even though it can be used anywhere at any time. Mobile devices have been favorably tested with respect to efficacy. The position assigned to mobile devices is an issue related to MALL. Smart devices are an aid to facilitate language learning, as are computers. Their efficacy depends on the proper use by students and instructors.

Zhou (2019) offers a critical analysis of MALL studies in the 2007–2019 timeframe for instruction Chinese as a foreign language (CFL). In the analysis, orientation examinations were performed in order to recognize and choose experimental researches throughout the evaluation dated. Occurrence analysis on the statistics was used. In the reviewed studies, this established methodological patterns and study outcomes. The findings showed that maximum of the investigations analyzed consumed characteristic styles to analyze the impact of cell phone CFL studying in advanced schooling environments on formal learning. The researchers record the progressive effect cell phone equipment has on CFL studying. The key focus is on the usage of cell phone studying in Chinese words learning, language skills improvement and seamless cell phone education.

Wan, Shah, and Mohamad (2018) examined the understanding of the use of MALL in English as ESL between secretive work university learners in Malaysia. The results showed a positive view of the use of MALL by

respondents. Most respondents overall agreed on both the supposed utility (PU) and observed comfort of usage (PEoU) of MALL ideas. They thought that using MALL would improve the procedure of instruction and studying. These results are similarly parallel to the findings of Itayem (2014) that when evaluating the students' attitude towards the iPad, the observed helpfulness and observed easiness of usage of the students are important. Consequently, as respondents reported, the results clarify that the replies supposed that consuming MALL gives them many advantages when doing their job. Furthermore, in his research, Lawrence (2015) had similar results; nearly semi of the learner contestants had a favorable opinion of mobile integration for language learning. Then, these students' positive experiences provide an encouraging situation for the incorporation of MALL between instructors for the delivery of English plans at Korean universities.

Lee (2020) conducted a study to evaluate the user practice of a mobile-based learning context augmented by speech recognition technology to improve the speaking skills of EFL students. Speaking English 60 Junior, built for middle-school learners in Korea, is prepared for the self-regulated speaking exercises of students with reflex speech recognition (ASR). To gain insight into the answers of users, open-ended survey questions were used. The findings showed that, generally, the students had favorable attitudes about using the application to learn to communicate. Specifically, they showed great interest in the role of speech recognition because it immediately demonstrated the influence of their speech input. The speech-interactive activity in which they communicated with a virtual character via ASR was also provided with constructive feedback. The results show the possible use of cell phones and ASR in the EFL sense for learning to communicate.

2.4. MOBILE APPS FOR LANGUAGE LEARNING

Mobile devices have been consistently integrated into learning in recent times. The conventional teaching method and learning process has been changed by the widespread usage of mobiles and various transferable and Wi-Fi tools (Kukulska-Hulme, 2009). In English Language Teaching, this comprehensive use of mobile devices has brought tons of mobile applications. For language learners, various applications are available for download via easy access to the internet. Thanks to the movability and usability of mobile tools, learning materials can be accessed readily. There seems to be a cataloging of applications to support consumers explore the

wide range of applications and determine which one to consume. It is an absence of investigation on which applications seem worthy and appropriate for a specific student. The students are separated into tiers of primary, secondary, and tertiary. Applications are demarcated by the aforementioned group of students, which contains primary-level kids, secondary-level school students, college. According to Heil, Wu, and Lee (2016) MALL systems contain the capacity to alter how languages will be acquired. Three major trends have been recognized: first, applications seem to explain words in sequestered parts instead of in appropriate texts; second, applications are slightly personalized to accommodate the ability arrangements of single students; and third, applications seldom suggest descriptive counteractive input to students. These applications are behaviorist in feature, taking into account an educational change towards additional interactive language learning methodologies.

2.5. CLASSIFICATION OF MOBILE LEARNING APPS

Mobile app statistical data indicates the rapid growth of people around the world in the creation and downloading of multiple applications each year. There are plenty of English education applications accessible in the application stores, and it is certainly a tiresome task to pick the correct app. On the part of the learner, the challenge lies in selecting the correct application, and the problem now is which application is finest and best appropriate?

A substantial growth in the use of mobile tools by teenager has been shown by recent studies. They are thrilled to use these methods, and they are very happy with them.

Preschool kid's absence the skill to evaluator, with judgment, what is respectable and moral and what is wicked for them, particularly when managing cell phone plans. The responsibility here stretches out both with parents and trainers to serve as choice-makers to direct them in choosing the right or acceptable material that does not hurt kids, then in turn improves their education (Kim and Smith, 2015). Kim and Smith created an application for English education via combining a human-machine with a kids' school cellphone based on the theory of child development. Children regarded the robot as a companion of their own and certainly learned the language playfully.

Ushioda (2013) suggests that when reproducing on the character of enthusiasm in cellphone language studying, self-sufficiency, versatility,

independence, and select are inherent traits of cellphone education and instructors and content creators can pleasingly advocate internalized support for independent learning by using these features. Such an autonomous studying process is expected to create an important involvement, as the student wants to possess adequate elasticity and select above their individual studying, even where the curriculum is developed, and to be capable of directing the progress of their studying. Truly, the idea of self-directed education is articulated in the field of language learning in terms of student independence, which stresses choice and liberty.

Ciampa (2014) examined student motivation in multiple contexts through mobile devices. In the study item education of a trainer and learners in the classroom consuming laptops where the taxonomy of inspiration for game playing by Malone and Leppers was effectively employed. In general, primary investigation on cellphone learning, for example (Jones et al., 2006), eminent the encouraging features of cellphone tools, and cellphone tools characteristics which motivated students to use them: in formal environments, such as schools, learners also catch their casual learning experiences extra stimulating than learning for the reason that they have the ability to identify responsibilities and link actions to their own aims and manage their objectives. There is a direct correlation to the aspirations and desires of learners by the very nature of casual learning, ensuring that basic incentive is expected to be great.

With the widespread emergence of web technology in the late 20th century and the succeeding advent and growth of mobile technology, devices, and especially smartphones in the early 21st century, using mobiles in human's daily life is not a matter of choice anymore. Smartphones have become an inevitable companion for many people. They have penetrated and integrated into human life so profoundly that the presence of mobile technology per se seems blurred. The term *everyware,* introduced by Greenfield (2010), refers to ubiquitousness and pervasive nature of mobile technology as facets of the same paradigm of interaction. Everyware uses wearable computers and artificial intelligence (AI) to access all places, which may seem unreachable without its existence and penetration; meanwhile, the presence of everyware is so natural and relaxing that the intricate technology itself has disappeared from the ubiquitous functionality. Using technology, including everyware, may facilitate and enhance learning the English language as a universal means of communication (Kukulska-Hulme and Shield, 2007; cited in Kazemainy, Barjesteh, Golaghaei, Nasrollahi, 2020). Everyware includes mobile devices and smartphones widely used for learning objectives.

2.6. SHORT MESSAGE SERVICE (SMS)

According to Chinnery (2006), SMS or short message service tends to be used for regular MALL events by using cell phones for language education. In particular, SMS is one of the mobile functions that enables the practice of talkative language.

In two studies by Kennedy and Levy (2008); and Levy and Kennedy (2005), Italian phrases, phrases, and example sentences were sent to the students as SMS messages through the mobile phones of the students. The usage of SMS in language learning as a good tool has been demonstrated by both projects. Moreover, almost all respondents expressed a constructive attitude about receiving text messages. It was also stated by Li and Erben (2007) that the language learners were able to grow their intercultural understanding and serious intellectual skills by using instant messaging. Some researchers such as Thornton and Houser (2005); Lu (2008); and Zhang et al. (2011) performed related experimental studies to examine the efficacy of SMS vocabulary learning. About 30 students from senior high school were split into two classes in Lu (2008). Students in one class used cell phones to study English vocabulary, while the other used written tools. The outcome showed that mobile workers showed larger words benefit rather than traditional and written method students. A study by Zhang et al. (2011) reported that more words in the posttests was retrieved by the class learning words through cellphone SMS communications rather than the other class studying via written content. Similarly, a study by Motallebzadeh and Ganjali (2011) investigated the impact of SMS on the output of 40 Iranian English Foreign Language learners on words remembering and understanding of reading. The outcome presented that with admiration to both words and understanding of reading marks, mobile consumers outstripped the controller class.

2.7. DUOLINGO

Duolingo is a pleasant, free app with quick, bite-sized lessons to learn 35+ languages. To develop your vocabulary and grammar skills, practice speaking, listening, reading, and writing. Crafted by language experts and enjoyed by hundreds of millions of learners around the world, Duolingo lets you prepare in Spanish, French, Chinese, Italian, German, English, and more for real conversations. The findings indicate that Duolingo MALL submission users find the mobile education associate useful. Using the application is simple to consume, and studying is improved with its support.

Gafni, Achituv, and Rachmani (2017) endorse the idea that there are benefits and disadvantages to the use of MALL applications, specifically Duolingo. The benefits can be shortened as: (1) MALL's ubiquity-its skill to operate on a transferrable computer that may be applied at anytime and anyplace allowing to the user's wants and free period available-is a benefit, as observed in earlier research for example Krivoruchko et al. (2015).

This skill often effects people to usage the program more often, since if he or she has a spare moment, the application is open to the student. The students of today, who are part of the Y age group, are constantly linked to their mobile tools. Then, they can use this program in any situation when they have free time. (2) As found in previous studies, the features which can be measured to allow self-education are beneficial when using a MALL presentation (Viberg and Gronlund, 2013; Bachore, 2015). The use of Duolingo is very useful for learning courses and resources that exist tailored to the learner and simply retrieved, studying liberation, the opportunity to person-test and the instant comment that the application offers. (3) Learning is enhanced by the gaming element of the application, making the responsibilities more fun and exciting. This pleasant contact affects the understanding of the application by the user as easier to use, in line with the findings of Munday (2016).

On the other hand, several drawbacks have been discovered: (1) technology and Wi-Fi dependency-this stood an astonishing outcome. Around semi of the respondents found technology dependency to remain a drawback. In some previous studies, like (Gafni, 2008), the Internet was not widely accessible, was not reliable, and access prices were very high. More lately, linking facilities have convert increasingly inexpensive and easier to use (ITU, 2015). Additionally, this was always seen by citizens as a downside. A potential reason is that tablets were used by some of the participants in place of mobiles. (2) A loud and deafening atmosphere was additionally described as single a minor drawback contrasted to previous studies wherein this existed as one of the obstacles to mobile device implementation for instance (Gafni, 2008). This may be since individuals became accustomed to running cellphone tools in all places, including in crowded community zones, such as on the road, highway, vans, cars, locations that have historically not been seen as suitable residences to focus on performance an activity throughout a PC or app. (3) The use of the cellphone tool not only as an education tool but as a machine that offers entertaining, societal interacting, knowledge, and additional was one of the problems faced by people. One of the issues people faced was the use of the cellphone tool for

an education means, not just as a computer that offers entertaining, societal interacting, material, data, and further. Consequently, during the use of the computer, the distractions, and temptations (SMS, calls, notifications, etc.), had the potential to interrupt their attention while studying. Those results could happen since earlier experiments between (2007–2008) were carried out in the initial acceptance age of cellphone tools while mobiles had been launched and folks were not accustomed to using those minor portable tools. Anderson (2015) stated that through the increasing usage of such tools, the public appear to have turned out to be familiarized to consuming them.

Loewen et al. (2019) examined the semester-long learning processes and outcomes of nine participants learning Turkish on Duolingo. At the end of the study, the participants demonstrated progress on L2 tests, and the findings show a strong, moderate link between the quantity of period consumed on Duolingo and the improvements in studying. The participants typically regarded Duolingo's versatility and gamification aspects favorably in terms of interpretations of their experiences; However, heterogeneity was also reflected in the desire to learn and dissatisfaction with instructional materials. Karjo and Andreani (2018) consumed ethnography methods to assess the effectiveness of two language education applications: Duolingo and Memrise for education two various foreign languages. To learn Spanish, Duolingo is consumed, and to acquire Italian, Memrise is consumed. The lessons given in Memrise are approximately equivalent to Duolingo. In every class, 10 words/phrases should be memorized by the researchers before moving on to the next lesson. The study describes the outcomes of studying both languages using the above-mentioned language learning apps over a span of two months. The outcome of the analysis is that Duolingo is preferred to Memrise. App Memrise is constructed on spread out recurrence retention, a system that uses cards as retention assistances. In reality, spread out recurrence is a studying strategy that integrates growing time intermissions among the consequent analysis of earlier acquired recourse to take advantage of the impact of emotional space. With CALL software-constructed answers, spaced repetition started to be introduced. This method, which is called the Pimsleur language learning system, was originally consumed in 1967 by Paul Pimsleur. The technique of Pimsleur was essentially based on audio instruction repetition. The set-apart repetition program used in Memrise, however, is showed afterward the handbook method of physical flashcard learning: as question-answer pairs, items to remember are arrived into the program. Karjo and Andreani (2018) believe that mastering a foreign language requires further than only learning

to memorize and translate vocabulary or expressions. Language acquiring involves acquiring the four language abilities to master, such as speaking, listening, reading, and writing. For teaching abilities, for instance, words, phonation, sentence structure, listening, reading comprehension, and speech, mobile learning can be used. And these abilities are not taught extensively.

2.8. CONCORDANCING IN ELT: CONCORDANCE SOFTWARE PROGRAM

Corpora, or collections of spoken or written texts assumed to represent a given language (Lee, 2003), open up a wide range of possibilities for teachers and learners of this language. Vast databases of corpora are analyzed with software programs called *concordancers*. This chapter is an attempt to discuss concordancing and its applications in ELT. The term *concordance* originates from what has been known as concordances. Higgins (1991) defines a concordance of a word as "a set of citations or line references, allowing every occurrence of that word within a corpus of text to be retrieved" (p. 92). Tribble (1990a; cited in Ma, 1993, p. 11) refers to a concordance as "a reference work designed to assist in the exegesis of biblical and other socially valued text."

Godwin-Jones (2001, p. 8; cited in Supatranont, 2005) defines a concordance as "an alphabetical listing of words in a text or collection of texts, together with the contexts in which they appear." In other words, a concordance is a list of occurrences of either a particular word, a part of a word, or a combination of words in context drawn from corpora. Nowadays, it is assumed that learners must study real instances of corpora. Johns (1991, p. 2; cited in Hadley, 2002, p. 106) writes that "The language-learner is also, essentially, a research worker whose learning needs to be driven by access to linguistic data-hence the term *'data-driven learning' (DDL)* to describe the approach." Apart from being employed in the compilation of corpus-based dictionaries, grammars, and syllabuses, concordances can also be utilized directly in the classroom, in an approach to language learning which, since the pioneering work that appeared in Johns and King (1991; cited in Frankenberg-Garcia, 2005), has come to be known as DDL.

According to Sinclair et al. (1990, p. vii; cited in Sripicharn, 2003), "It is essential for a learner of English to learn from actual examples, examples that can be trusted because they have been used in real communication" (p. vii). However, corpora may also be used directly in ELT. Garcia (2003, pp. 192, 193) attempts to summarize these advantages as follows:

- Grammars, dictionaries and course books offer a limited selection of examples due to an obvious limitation of space. Corpora, on the other hand, contain a great number of instances of actual language in use that may be used: a) to supply additional information when required and b) to be incorporated in the design of exercises.
- Reference materials show their authors' reflections on language. But we may want to explore language ourselves. In this case, the evidence in corpora may help our purpose …. With access to corpora, students, and teachers have the possibility to interpret raw data and offer a different presentation.
- Introspection is another source of examples used by teachers, especially to answer questions of the type "what is the difference between x and y?" or "Is x correct or incorrect?" However, it is not advisable to "make guesses' based on intuitive data …. Corpora contain evidence of language in use and are much more reliable than even native speakers' intuitions. Their data may help teachers answer students' questions.

2.9. MONOLINGUAL VS. PARALLEL CONCORDANCES

Frankenberg-Garcia (2005) contrasts monolingual concordances with parallel ones. She writes that "monolingual concordances can be obtained not only from the Web, where provenance is not always clear, but also from carefully designed linguistic corpora like the British National Corpus (BNC) and COBUILD's Bank of English" (p. 190). It is essential that language learners and teachers be aware of the origin of concordances to know what to expect from them. Frankenberg-Garcia (2005) asserts that concordances from carefully edited linguistic corpora are safer to be used, but may consist of language too difficult for beginners or too general for advanced learners. Users must learn to choose concordances from corpora that represent the type of language they are look for.

Conversely, parallel concordances are concordances from corpora that contain texts along with their translations into one or more languages. Thus, such concordances are bi- or multilingual. Although parallel concordances are normally associated with translation studies, translator training, the development of bilingual lexicography, and machine translation, several studies have referred to their potential uses in L2 learning (for example, Barlow, 2000; Roussel, 1991; cited in Frankenberg-Garcia, 2005). St. John

(2001) asserts that a parallel corpus and a concordancer would be appropriate tools to supplement a teaching program of German at the beginners' level in an unsupervised environment. Frankenberg-Garcia (2005, pp. 190, 191) discusses that when using parallel concordances in the classroom it is important to remember that:

- Parallel concordances are based on translations and encourage learners to compare languages. They Therefore can only be appropriate in the classroom when learners share the same native language, and when it is helpful for them to use their first language as a tool for learning the L2….
- …parallel concordances provide access to so many comparable facts of linguistic performance that it is easy to lose sight of the kind of information that really matters. There is no point in sieving through parallel corpora to make L2 learners focus on language differences that do not affect their learning.
- Unlike monolingual concordances, which present learners with texts written in a single language, parallel concordances contain not only two languages, L1 and L2, but also two types of language: Source texts (ST) and translations (TT). Thus, it is necessary to understand the implications of the differences between L1-L2, L2-L1, ST-TT, and TT-ST concordances.

2.10. LARGE-CORPORA VS. SMALL-CORPORA CONCORDANCING (SCC)

For many years, the use of concordancers for text analysis has been limited to the domain of computational linguistics and corpus linguistics. These analyzes have been carried out mainly with mainframe computers on very large corpora running into tens of millions of words. Apart from large-corpora concordancing, there has also been a growing interest in the use of analysis of small corpora with microcomputers, coinciding with the growth of interest in CALL in the mid-80's. The result of the movement of small-corpora concordancing (SCC) is that "computerized text analysis has been brought much more closely to teachers, course designers, materials developers and learners alike, and SCC as a tool for text analysis or as a pedagogic activity is increasingly brought to test and experimentation in various places all over the world where one or more microcomputers are available" (Ma, 1993, p. 13).

2.11. SMALL-CORPORA CONCORDANCING (SCC) FOR SYLLABUS DESIGN AND EVALUATION

As early as 1988, Sinclair and Renouf (cited in Ma, 1993) put forward the idea of designing a general English syllabus based on "the common uses of common words" as identified by the computer-generated frequency lists of the COBUILD corpus. Using data from the same corpus, Flowerdew (1993, 2001) pioneers in the application of small-corpus in syllabus and course design. He used concordance-based word counts to establish the relative importance of vocabulary items and provided criteria for syllabus selection and grading. Flowerdew suggests that SCC can be employed to identify useful items to teach, reveal syntactic patterns in which certain words occur and locate functional and notional areas which might be included in a syllabus (Flowerdew, 1991, pp. 38, 39; cited in Ma, 1993).

2.12. SMALL-CORPORA CONCORDANCING (SCC) FOR CLASSROOM

The idea of using SCC in the classroom for the teaching of ESL, generally known as classroom concordancing (CC), is strongly supported by a number of researchers, and applied linguists (Stevens, Johns, and Tribble and Jones). In the ESL classroom, concordancing is seen more as the methodology of teaching or learning than as a way of text analysis. The rationale for the CC approach is one of authenticity and discovery. Johns (1986) describes this concordance-based approach as DDL. As the name suggests, this approach is characterized by language data taking on a primary role in language learning. Johns suggests that concordances provide "intake," (after Corder, 1967), i.e., the part of input that is actually helpful, to the language learner, which strikes a healthy balance between the "highly-organized, graded, and idealized language of the typical coursebook" and the "potentially confusing but far richer and more revealing authentic communication" (Johns, 1986). Johns (1991a) describes this approach as a break away from the rule-based approach into the data-driven approach and identifies it as a kind of inductive learning where it differs from the traditional approach in that data replaces the teacher as the basis. It is believed that the CC approach can build learners' competence by giving them access to the actuality of linguistic performance. CC (as opposed to research concordancing) tends to have two characteristic objectives: using searches for function words as a way of helping learners discover grammatical rules, and starching for pairs of near-synonyms in order to give learners some of the evidence needed for

distinguishing their use. This type of work demands very rapid responses to spur-of-the-moment questions and does not, especially in the case of function words, need to be carried out on large text corpora.

2.13. PROBLEMS WITH DATA-DRIVEN LEARNING (DDL)

No method or technique is perfect, and using DDL is diagnosed with problems (2001). With beginners, the amount of data the learners could be exposed to is problematic. Some students would lose their motivation if provided with too much data. Yet, if not enough data was provided, how could I know they had received sufficient exposure to the grammatical or lexical items? A more serious problem can be the difficulty level of concordance material. The vocabulary and sentence structure which collocated with the keywords might be beyond the level of students' ability. Another problem can be the time it takes long to develop and copy materials for students. Thus, it would be nice if each student could access the corpus material.

2.14. LEARNING LANGUAGE SKILLS THROUGH (MALL)

Cakir (2016) gathered learning language skills through MALL as follow:

- **Vocabulary:** One of the most commonly used practices is the willingness of learners to use MALL to repeat and acquire the target words. Students use SMS and electronic mail communications (Thornton and Houser, 2005), now WhatsApp communications, audial, and movie practicalities of cellphone tools, to receive sufficient language input (Başal et al., 2016). For several purposes, learners, and teachers may use these resources to explain and exercise articulation (Ducate and Lomicka, 2009) to facilitate words studying and to manage tests (Lu, 2008).
- **Reading:** Learners' reading skills maybe strengthened complete MALL-based actions (Chen and Hsu, 2008). In particular, comprehensive mobile reinforced reading services (Lin, 2014) and electronic books (Chang, Liang, Yan, and Tseng, 2013) provide a widespread range of reading actions that may be carried out independently or cooperatively. The growing popularity of e-books is likely to slowly inspire further reading in a foreign language, mainly in English, where common texts are amply

manageable, several of them open of charge (Kukulska-Hulme, 2013, p. 6.). That is, in many parts of ordinary life, the usage of cellphone tools has become so popular than in previous years, and innovations such as e-books have started to change published resources (Acartürk, 2012).

- **Listening:** One of the important aids of MALL to foreign language studying is that it promotes students' listening understanding when properly concerned and requested, mainly in a thorough listening phase. Using the listening features of cellphone tools, for instance listening to aural records or radio programs, is simple, understandable, and pleasant for language students and instructors (Chang and Millet, 2014). According to Çakır (2012), as cellphone electronic-books with combination capabilities of cellphone tools are incorporated into reading skills with the help of audiobooks, learners are highly required to encourage their listening and reading understanding skills together with the production of precise articulation and phonation.
- **Speaking:** Students contain many chances to increase their speaking skills via apps and MALL-centered tasks. Students are able to consume vocal sound and movie record features on cellphone tools to rehearsal speaking.
- **Writing:** Mobile tools can be used by learners and trainers to improve writing abilities, especially in journal keeping and self-editing. Peer editing can also be useful for the study of written products by learners. Commentary sections of each of the Photo-sharing websites can improve reading and writing skills for learners, as well as (Barton and Lee, 2013).

2.15. CHARACTERISTICS OF MOBILE LEARNING

Cakır (2016) cited some distinctive characteristics of mobile education and mobile skills. A number of the important features are itemized:

- **Asynchronous:** It allows the co-formation of subject in which students engage with classmates to write, update, and exchange manuscripts consuming devices such as email, blogging, and interactive wiki improvement (Terrell, 2011).
- **Bite-Sized Studying:** In the nonconcrete, a bite-sized method involving bite-sized studying may be added to short learning modules (Kukulska-Hulme et al., 2005).

- **Blended Learning:** Mobile learning facilitates mixed instruction and education methods to include photos, charts, cartoons, imitations, and movies to students (Naismith et al., 2004).
- **Collaborative Studying:** It is thought that students improve collaborative studying throughout MALL. Using the technology and the devices of websites, weblogs, and societal networking offers chances for learners to communicate and produce collaborative work that can be printed or program on the internet or elsewhere annually. It consequently encourages cooperation between students through interactive learning activities.
- **Connectivity:** This purpose allows students to link to the wireless network and communicate with the associated learning tools. To capture or exchange data, they can also be linked to other devices.
- **Different Learning Strategies:** Various learning strategies can be enabled or built by mobile learning.
- **Instant:** Expending a cellphone tools gives rapid responses to particular problems (Cohen, 2010).
- **Interactive:** The software features at the touch of a button provide students with interactive practice resources.
- **Learner Autonomy:** Technology alone does not establish autonomy, but it can allow learners to progressively become autonomous with the necessary assistance, guidance, training, and scaffolding.
- **Motivating:** It increases the enthusiasm and motivation of learners as it collaboratively allows learners to handle activities and complete assignments in both informal and formal settings.

2.16. MALL ACTIVITIES AND LEARNING THEORIES

Naismith et al. (2004, p. 5) state that the following hypotheses may be grouped into MALL-based activities:

- **Behaviorist:** MALL-based practices, for instance, exercises, drag-and-drop, recurrence, and comment encourage acquiring as an alteration in students' noticeable behavior. Learners in certain specialized areas are required to accomplish certain advances through these activities.
- **Constructivist:** MALL-based tasks let students create novel opinions or perceptions constructed on both their earlier and

present experience, for example, participating imitations.

- **Situated Learning:** Practices make studying simpler in a real environment and society, for instance, dilemma and case-based studying, comprehension of situation, etc.
- **Self-Regulated Learning:** Students may monitor their individual acquiring during tasks and exercises where cellphone tools are consumed.
- **Authentic Learning:** To rehearsal and acquire the target language, learners can access authentic materials.

2.17. CRITERIA LANGUAGE TEACHERS USE WHEN SELECTING CALL TECHNOLOGIES INTRODUCTION

McMurry (2012) has emphasized the investigation of the usage of technology by independent language students, alternative language studying situations, kinds of software utilized in the class, and also the experiences of the use of technology by teachers from the initial start of CALL examination. While much about these subjects has been discovered, little is identified around the principles used by instructors to pick out the technologies they use to improve language acquiring and instruction. Language instructors are mainly accountable for the usage of internet and software in the class or further language acquiring situations. Some issues are aimed at showing details about these criteria. Why do instructors, that are professional software consumers, opt to consume unique internet equipment? How should teachers choose whether there should be no use of a specific software or no software of any kind? Recognizing the requirements that language instructors obey while choosing internet equipment can support update internet and computer developers and plus software package managers on the improvement and acceptance of problems with CALL software. By a full perception of the standards, the feature of technology generated will expand, as programmers retain the standards of finish consumers at the front. If internet and software is a device that improves language education, managers should decide founded on the standards of those who successfully use software. In the end, educators are the gatekeepers in the classroom of the technologies used. As soon as instructors are conscious of the requirements consumed to choose internet, computer, or other equipment-using class activity, their ability to make educated choices about the use of technology will improve.

What requirements do language instructors deliberate while choosing and expending software to improve language studying? We refer, by standards, to any factor considered by educators, including both obstacles and motivators, in choosing technologies. Problems in the language classroom that can hinder the use of technology. Instructors' training, approaches, opinions, privacy, and aspirations altogether appear to donate to the usage of software in the class.

2.18. TEACHER EDUCATION

Some investigators such as Egbert, Paulus, and Nakamichi (2002) questioned exactly how trainers acquire about Computer Assisted Language Learning-constructed applies, how studying in their homework influences their present education, what kind of aspects impact the usage of computers, and how educators carry on learning casually about CALL. The responses to these queries remind us of variables that can impact the choice of CALL resources. They establish that instructors usually acquire about the usage of technology on their personal and that homework is normally classification. The effective features manipulating PC usage are the absence of time and materials, plus further curriculum, or official constraints. Although these support valued details, the query stays: what standards do instructors consume when choosing CALL resources?

Kessler (2007) studied the approaches of instructors towards internet and software and the kind of Computer Assisted Language Learning teaching they obtained. He defined official teaching as the education instructors could obtain as the instruction obtained throughout individual understandings and person-education in a classroom setting and informal training. In the instruction of English to learners of further languages (TESOL), he studied 108 former students with master's degrees and found that informal training in CALL affects teachers more than official teaching. He claimed that if instructors carry on to acquire in this casual and relaxed atmosphere, they would not be capable of take advantage of the instruments and studying chances accessible to them as CALL lasts to grow (p. 184). Furthermore, as stated by Kessler's study, CALL teaching desires to encourage casual and relaxed teaching and support standardized teaching to aid instructors stay up to date with the latest technical and hardware advances that can be used in CALL.

Additional aspect impacting the use of technology by teachers is their background as teachers. Interviews were carried out to clarify the variations

among individuals who consume internet and software and individuals who do not (Meskill, Mossop, DiAngelo, and Pasquale, 2002). Specialists and beginners were also surveyed and noticed that the five highly experienced CALL instructors were inclined to investigate how and why technology was used. Perhaps the most important outcome reported in McMurry (2012) The research is that in their incorporation of software into the class, new instructors by cutting-edge computer usage training feel less comfortable rather than instructors through further education knowledge and a lesser amount of cutting-edge preparation. Although not directly alluded to in the pamphlet, the investigators point out the profits of acquiring successful class techniques from seasoned instructors to better-quality participate software in the language class.

Furthermore, for both experienced teachers and starting teachers, K-8 class was examined. Wetzel, Zambo, and Ryan (2007) discovered that knowledgeable instructors expended internet and software further frequently in their class, but cannot afford an explanation for the wonder. They show that teaching time can influence the usage of equipment, however it can possess a bit to perform with a mixture of aspects that include both knowledge and self-confidence, between others.

Kim (2008) finally explored ESL and EFL students' experiences of PC usage in the class. Kim thought that considerable of the CALL works indicates that the advantages of the usage of technology will encourage a constructivist attitude to acquiring instead of the conventional teacher-centered attitude. Kim concluded that afterward questioning 10 trainers for 50 minutes apiece and consuming a stranded empirical methodology for statistics analysis, instructors observed the usage of internet equipment predominantly as an educational device, whereas the writer clarified a significant aspect of teacher perspectives, Contestants had parallel experiences and technical skills that cannot have tinted a precise image of instructor knowledge at different stages of competence in equipment. Furthermore, their priorities were addressed in the interviews, and they did not dwell on the decisions and activities taken by these teachers when using CALL. This knowledge will prove useful in understanding their views on the use of technology, although not the purpose of the study.

Perhaps one of the study's most profound consequences is that administrators make teachers open to technology. The same as it is, the initiative to transport the equipment to the class and the disturbance of creation the technology was not value it. Administrators should carefully

assess the feasibility and make it easy for teachers to access such language learning devices. Program leaders, plus instructors, ought to be mindful of smartphones, additional equipment that is readily accessible in countless classes. If accessibility is really a problem, therefore educators and managers ought to let consume of willingly accessible technologies. Administrators should ensure that educators possess enough time to comprehend and consume equipment at their disposal. In any circumstance, teaching, and learner studying demands undermined ease and connectivity. Basically, placing further machinery and equipment in the class can lead to greater use, unless pedagogy is given first consideration.

Teacher preparation and teacher competence should be deemed paramount by administrators. If plan managers intend the instructors to consume equipment efficiently, they ought to clarify those instructors are conscious of the educational basics of language education. Managers do not believe that the usage of equipment can benefit from enhanced instruction. They ought to recall that educationally seem instruction may guide to technology's beneficial usage. Instructor coaches must possess a good comprehension of language acquiring education in order to assist learners have the same knowledge under their tutelage. Assignments were frequently classification, however, noticed that curricular constraints hampered the usage of technology (Egbert, Paulus, and Nakamichi (2002). Instructor coaches ought to support potential instructors decide how to consume equipment in compliance with educational values that align with the compulsory syllabuses' rules. On the way to help achieve these objectives or results, there must exist a link among the educational goals and results of a language sequence and the skill or failure of a specific equipment.

2.19. ADVANTAGES AND DISADVANTAGES OF MALL AND CALL

Demouy et al. (2016) assume that we should take advantage of their activities for other language learners and that they can be an excellent dynamic information resource that is under-valued and under-used. Educators who want to use learner awareness to improve their curriculum should also aim to improve their mutual understanding of device affordances and software resources, like applications, and in relations of topics, for instance, expanded language communication, their purpose of independence, and the housing of person wants, to keep learning more about the motives of students.

2.19.1. Advantages of Computer Assisted Learning

There are a variety of reasons for using CALL in school. Here are a couple of ways CALL can inspire learners:

- **It Caters to the Individual:** With CALL, in their own time, every student can go at their own pace and make progress. Usually, computer lessons or games adapt to the student, not to a set norm, based on their own accomplishment, so that each student can have a more personalized experience.
- **It Promotes Constructive Participation and Target Language Use:** It is nice to take a seat in the classroom and replicate vocabulary and create verb maps, but the true acquiring originates while you consume the practice in an actual condition. Learners who use the vocabulary they learn to acquire deliberately assist them to recollect those vocabulary or expressions superior.
- **It Lets Students See Their Progress:** Again, to encourage students to want to learn more, it is important to have feelings of accomplishment and satisfaction. Due to this, CALL is a vast technique to consume in the class. Learners will effortlessly understand the development they are creating. In a game or a virtual class, learners experience as if they are performing properly if they do a crossword or reach to the following stage, which keeps them interested in the lessons.
- **It Breaks Down Complex Topics into Smaller Pieces:** Teachers also find it difficult to classify compound subjects since they do not recognize the greatest technique to do so. Video games and tutorials, though, organize this for learner and split up courses into bits that are bite-sized and will be mastered and remembered further simply.
- **It is Interesting and Engaging:** An uninterested learner is not an excellent individual. Whereas several learners enjoy speeches, some others need further support to remain engaged and energetically acquiring. For this, CALL is complete, as it suggests several opportunities for apiece singular learner to communicate and remain engaged in the subject approaching.

2.19.2. Disadvantages of Computer Assisted Learning

There are a few downsides to it, while CALL may seem like a smooth technique. Now it is a glance at several of the drawbacks of consuming CALL in the classes:

- **It can be Expensive:** Price is possibly the main obstacle to consuming Computer Assisted Learning in the class. Expensive PCs, mobile tools and applications are available. For example, for some schools, providing a PC for each learner is not an accurate target.
- **It can be Difficult for Teachers to Implement:** Whenever electronics get implicated in something, it becomes further difficult, no less than primarily. Instructors must acquire how to consume the technology themselves beforehand their students consume it, and even the right teaching may last lots of valuable time! We altogether possessed the instructor wasting plenty of time throughout the class since they did not understand how to consume the overhead projector or the computer. Nobody wants to be a teacher like that!
- **CALL Activities do Not Always Fit the Teacher's Goals:** While expending third-gathering services, movie, or lessons, it is also difficult to discover one that precisely sizes your desires or training method. There will be periods where a virtual test does not contain the precise vocabulary that you aim to examine for, or when the movie you are viewing contains some part of the speech you have to emphasize. Instructors need to discover a method to mix CALL into their classes minus allowing it to order the resources to be acquired, and occasionally discovering a stability may be challenging.
- **It can Lead to Isolation among Students:** A person's modified acquiring skill is a worthy item. Suppose a class occupied with learners, each with their personal screen, not watching at other students, just communicating with the machine ahead of them. Meeting people is an essential role of the usage of language, and we acquire different knowledge about language by engaging with each other. To help them understand, students need other learners, and this can be inhibited by CAL. Even, CALL may be an amazing instruction aid while incorporated into the class. The way students learn languages or learn something will change

CAL, for that matter, by using it to complement your curriculum instead of dictating it!

2.19.3. Basic Advantages of Mobile Technology

According to Çakır (2016), it is obvious that mobile technology offers foreign language learners a wealth of learning opportunities and activities that can be used in and outside of the class, which is greatly further dynamic and inspiring than old-fashioned teaching tools, for instance, books, aural, and film equipment. In particular, several of the benefits of equipment, MALL especially, can be summarized as follows:

- It offers engagement and outgoing practices;
- It raises awareness of the language's socio-cultural dimensions;
- It provides understandable feedback and encourages the output of learners;
- It offers sheltering techniques (showing, connecting to the related skills of students, analyzing, and so on.) for language learning and content-specific comprehension;
- It uses methods that are task-based;
- It provides legitimate items;
- It offers talkative practice of language;
- It encourages cognitive skills and skills for analytical believed;
- It uses co-operational learning;
- It helps concentrated training across the curriculum and disciplines aimed at the advancement of speaking, listening, reading, and writing skills;
- It is learner-centric and focus on students' particular wants;
- It consumes many qualities, to care various acquiring classes;
- It addresses learners' emotional wants: enthusiasm, self-confidence, and self-sufficiency;
- It enables students from anywhere and at any time to admission learning supplies and data;
- It inspires learning with different apps;
- It offers suitable input and valuation of data of satisfied and English skills.

2.20. LIMITATIONS OF MALL

As Kukulska-Hulme and Traxler (2005) state, it is extensively acknowledged that cellphones for educational purposes are not always expected. It is possible to perform all the duties because of certain limitations. They have trouble reading on a tiny device, such as reading on that kind of a phone, information storing and software limits, Digital typing, and other related apps. As stated by Kim and Kim (2012), it was discovered that intellectual drawbacks connected to student focus and optical awareness were correlated with building a small screen size. Similarly, Ushiada (2013) asserts that due to their restricted about sizes, it would not always be acceptable to develop any language abilities using mobile technology. It will similarly be enhanced that MALL comprises restricted amounts of nonverbal touch, national and societal communication constraints, and histories. According to Colpaert (2004), cellphone equipment are emerging and that their development is rapid. A strong downside to studying languages is switching from verbal to visual. In addition, Kukulska-Hulme (2013) argues that they learn to some degree from mobile phones, but they may face some difficulties in some groups of learners.

2.21. SUGGESTIONS

The history of CALL shows that a range of usages for language instruction may be used by the computer.

It may be a teacher providing language lessons or ability rehearsal; a motivation for conversation and communication; or a written and investigation instrument. It may be a means of worldwide contact and a foundation of unlimited reliable resources with the advent of the Internet. As Garrett (1991) figured out, "the use of the computer does not represent a method" Instead, this one stands a "medium in which a range of methods, approaches, and pedagogical philosophies may be integrated" (p. 5). It is a shame in current educational environments that there are some schools that, while having a privileged computer space, there is not a total potential use of that basis of information. Numerous individuals and a number of instructors think unpleasant with internet and machinery while there are moments when they become frightened of it; in that situation, the finest manner to resolve this discomfort is to confront it by doing as countless internet drills as probable.

Promoting the use of CALL studying lacking in ignoring the uncertainty that shelters the use of emerging technology is a significant implication.

Teachers from administration-possessed institutes in particular would consume facilities, for instance, training and workshops on computer usage and in what way it can be expended in instruction PC literateness to teachers. While instructors and learners learn that the PC offers additional technique to gain information, a feeling of happiness is obtained and achieved. This increases morale and fosters communication.

Interaction has been restricted in conventional classrooms due to small bodily potentials or owing to the lack of experience by teachers in consuming the internet. Computer work stands a mixture of inspirational features that creates the engagement of learners additional allowed and impulsive. It is popular that learners carry compact discs of English music to the laboratory. These components often facilitate engagement and new positions for equally learners and instructors. Learners also possess extra expectations for competence, challenging, communication, and self-assessment concerning independent studying. The instructor had better consider student variations in interests and skill. For instance, interaction is restricted, and the materials are presented in a linear manner when there is only one way to access the Internet. There are more avenues and several different potential subjects to explore to access the internet. Students may choose various activities to read and learn. In order to account for individual variations in skill and interests, various aspects of daily life and individual work are described. The Department of Education should help develop each government school's computer laboratories and for those who do not have a computer in anyway. They should also suggest the use of a technology and computer link for per graduate school, which may be used simply in education rather than in the greater connectivity of the graduate school to the headquarter or partition. It may similarly act as a convenient manner for teachers and principals to request reports and help minimize paperwork. Teachers should also give students strict instructions about how to use the computer and the internet to search for information. In order to be safe from the harmful influences of the internet, students should always be properly directed when browsing the internet.

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Chapter 3

Assessing Language Through Computer Technology

CONTENTS

3.1. INTRODUCTION

In the last 20 years, several authors have described the possible changes that computers may affect in language testing. Since ARAL's last review of general language testing trends, authors have offered various visions of how computer technology could alter the testing of L2 skills. Initial steps were made in the conversion of existing item types and constructs already known from paper-and-pencil testing into formats suitable for computer delivery. This was closely followed by the introduction of computer-adaptive tests, which aim to make more, and perhaps, better, use of computer capabilities to tailor tests more closely to individual abilities and interests. Movement toward greater use of computers in assessment has been coupled with an assumption that computer-based tests should be better than their traditional predecessors, and some related steps have been taken. Corpus linguistics has provided tools to create more authentic assessments; the quest for authenticity has also motivated the inclusion of more complex tasks and constructs. Both these innovations have begun to be incorporated into computer-based language tests. Natural language processing (NLP) has also provided some tools for computerized scoring of essays, particularly relevant in large-scale language testing programs. Although computer use has not revolutionized all aspects of language testing, recent efforts have produced some of the research, technological advances, and improved pedagogical understanding needed to support progress.

3.2. SOCIAL NETWORKING

According to Boyd and Ellison (2010), SNSs are web-based services that allow individuals to construct a public or semi-public profile within a bounded system, articulate a list of other users with whom they share a connection, and view the pages and details provided by other users within the system. Information technology (IT) is changing the face of education. Teachers and students are no longer using the black or whiteboards. IT is shaping the way education develops (Dudeney, 2012). Teachers and students are using IT, which includes the Internet. Using the Internet is a way of communication which is interactive. Dogra (2010); and Kidd (2011) have described the use of the Internet is motivational since knowledge can be found and students have access to numerous resources. Cochrane and Bateman (2010) have stated that the Internet is shaping higher education, and some students are expecting to use it in their classes. Also, Walsh (2010) has agreed that social network sites on the Internet are very popular with students and have a place

in education. The link between social network learning and 21st-century skills has been proven (Greenhow, Robelia, and Hughes, 2009) and offers great potential in resolving current educational problems. The popularity of social networks has made it essential to investigate ways to use them effectively. There is a huge opportunity for English language teachers and students to use them (Dudeney, 2012).

Social media, Internet-based tools that promote collaboration and information sharing, can be used in academic settings to promote student engagement and facilitate better student learning (Kabilan, Ahmad, and Abidin, 2010). Because student engagement represents the time and effort that students invest in collaborative and educational activities (Kuh, 2001), it is often linked with the achievement of positive student learning outcomes, such as critical thinking and individual student development (Carini et al., 2006).

Current research has indicated that using social media as an educational tool can lead to increased student engagement (Annetta, Minogue, Holmes, and Cheng, 2009; Chen, Lambert, and Guidry, 2010; Junco et al., 2011). Student engagement represents both the time and energy students invest in interactions with others through educationally purposeful activities (Kuh, 2001). Nelson and Kuh (2005) reported that students who use IT for academics also have a higher likelihood of contributing and participating in active, academic collaboration with other students. This collaboration indicates that as engagement with technology increases, engagement with academics also increases, promoting a deeper connection between the students, educators, and course content (Mehdinezhad, 2011). By participating in a community of learners, students become more engaged with the course content which increases the achievement of popular learning outcomes, such as critical thinking and individual student development (Carini et al., 2006; Kuh, 2009; Kuh et al., 2008; Pike, Kuh, and McCormick, 2011).

Though social media can increase student learning through student interactions, challenges arise when social media are incorporated into an academic course. Arnold and Paulus (2010) found that even when social media is used for an educational purpose, students incorporate the technology into their lives in a way that may differ from the intentions of the course instructor. For example, off-topic or non-academic discussions occur on social media because of its primary design as a social networking tool (Lin et al., 2013). Liu (2010) not only agreed that the inclusion of additional Web 2.0 tools provided a richer learning experience, he suggested that with demand for education outstripping finite classroom space, these new

technologies offered a means to serve the needs of new learners. According to Liu, the read-write Web (social media) had only two primary applications. First, as a collaborative teaching and learning resource, it can augment current learning environments. He wrote that content management systems have been on the forefront of this trend. Secondly, and more challenging, he posited that social media might be used to extend the learning environment, providing a secondary learning channel. Social networking sites (SNSs) have the potential to facilitate interaction, communication, and collaboration, and as a result, have been prominently featured in discussions centering on the use of technology to support and amplify educational endeavors (Greenhow, Robelia, and Hughes, 2009).

The use of online social networks in educational endeavors has been supported by numerous educational technology researchers, who have highlighted the benefits of participatory technologies in formal learning contexts in K-12 (Barbour and Plough, 2009; Greenhow et al., 2009) and higher education settings (DeSchryver et al., 2009; Veletsianos, 2011; Webb, 2009). Social networking technologies have been viewed as tools that enable the use of participatory pedagogies able to address the problems that have traditionally plagued distance education: creating a sense of presence, community-building, and learner participation in interactive discussions (Brady et al., 2010; Lee and McLoughlin, 2010; Naveh et al., 2010).

Arroyo (2011) states that online social networks are ideal to create a learning community and to base its work in problem-based learning (PBL), in which students learn about a subject in the context of complex, multifaceted, and realistic problems. Organizing foreign language students in working groups, students identify what they already know, what they need to know, and how and where to access new information that may lead to resolution of the problem. The role of the teacher is a facilitator of learning who provides appropriate resources of that process. With blogs, wikis, and SNSs, the Internet has entered the new era of Web 2.0, which goes beyond linking information to connecting people (Warschauer, 2009). Facebook and other SNSs are becoming more prevalent in educational environments, with educators exploring how such tools can be used for teaching and learning (Schwartz, 2009; Terris, 2009). SNSs differ from and provide an alternative to proprietary course management systems such as Blackboard, since SNSs emphasize community and collaboration. They are designed to combine individual profile pages with group interaction tools, such as chat, blogs, and discussion forums. Many existing SNSs are free and can be incorporated by teachers without additional cost, which is why they can be particularly

useful when teaching courses on technology integration in the classroom. Through the use of experiential learning techniques, students themselves learn the CMC technologies they will eventually use in their own teaching.

3.3. THE ROLE OF TECHNOLOGY IN LANGUAGE LEARNING

It is clear that technology has been playing a major role in our lives since almost forever. There have been many studies conducted in this regard and many journals made a professional devotion to this topic; for example, Language Learning and Technology, ReCALL, and CALLICO (Chun et al., 2016). This field is, however, changing in a more rapid aspect and this makes matters a bit more complicated. With introducing new software, applications, and hardware in their studies, researchers do mention a shelf life that will eventually render them useless (Ahmadi and Reza, 2018; Chun et al., 2016). These researchers also add that with the new upcoming technological advances, people will be looking at an easier and more beneficent way of doing things.

The different contributions made in teaching and more recently in testing have been mentioned in books and articles alike (Chapelle and Voss, 2008; Jamieson, 2005; Kunnan, 2013). These scientists believe that tests have become more accurate through auto-correction techniques. Tests and assessments are also now easier via online and offline software. While there are fascinating changes being made in the field of CALT, there are still many issues that need to be addressed. Technology, especially e-learning technology, is being increasingly employed in instruction to enhance teaching and learning. Teaching is now much easier with smartphones and computers. Teachers' roles have changed drastically, and many teachers who are not able to work with the demanding technological needs are finding their reputations endangered (Kessler and Hubbard, 2017; Muhamadjonovna, 2020). CALT today has helped teachers to better assess their students' progress throughout their courses and to efficiently measure and evaluate the data gathered through charts and spreadsheets (Rosen, 2015). A variety of e-learning technologies are available for use in educational programs. In many parts of the world, education ministries and universities have invested much effort into increasing the use of the web in all its forms (for example, e-books, simulations, text messaging, podcasting, wikis, and blogs) to meet the demands of competitive markets and to bring a variety of learning choices to their learners. With the methods in language teaching slowly fading

away, a new era for language teachers came to be (Hall, 2016). Teachers are required to have a collective approach in their classrooms and thus choose a more collective approach in their testing. A mixed way of gathering both quantitative and qualitative data is from the students before, while, and after their studies has proved more promising in the past years (Amirbakzadeh Kalati and Memari, 2017).

Teachers and instructors are no longer the sole providers of material or takers of tests. In the vast world of today proficiency tests such as IELTS and TOEFL have both written and computer-based versions. In the past teachers mainly focused their teaching on the language (Davari and Aghagolzadeh, 2015; Mitchell and Alfuraih, 2017). Today, teachers should teach other skills, namely how to work with technology, alongside their classic routines and programs. Instead of teachers teaching student how to ask for an address from another person, they could simply teach them how to navigate using their smartphones and devices. Teachers could also teach students how to surf the Internet for better answers than just being confined to a book or two. As mentioned above, students learn not only from their teachers, but also from various sources online. Research has shown that students who have acquired the necessary skills needed for improving their reach in language learning perform better under different circumstances (Chen et al., 2017; Rosen, 2015). Students' views toward technology have also changed greatly. They have a great selection of items to choose from and are less dependent on their teachers. Students see how easier it is to do homework and assignments. They can also accomplish various tasks through collaborative and group activities (Pinto-Llorente et al., 2017). Finally, there are many language learning gaming applications that teach and test the basic skills and knowledge necessary in most foreign and L2s. These applications are mostly corpora-based and start at lower levels of language proficiency and usually do not go higher than intermediate levels. These programs have, although basic, helped with great aspects of learning and production of the learnt material (Rachels and Rockinson-Szapkiw, 2018).

Administrators and curriculum planners are less focused on selecting the material of the study but are rather dedicated to appointing a set of achievable educational goals. Students can now test themselves on a regular basis on what has been termed as a "flipped classroom" (Gruba et al., 2016). The reversed classroom allows teachers to analyze how students are performing and what they have learned from other resources and to then re-edit their lesson plan and take the required actions to benefit the situation (Kostaras, 2017). Cognitive, behavioristic, and goal-oriented syllabuses are

now tentative due to the changing of how students work and progress during the term or course. Teachers are, therefore, equipped with a wider selection of syllabuses based on their needs. Through the use of such techniques, the learners are more motivated and eager to follow their progress. Stress and anxiety levels are reduced and a more productive learning and testing environment is established (Damerius et al., 2019).

The key factors in CALT have been recognized by many scholars over the past years (Ahmadi and Reza, 2018; Chapelle and Voss, 2008; Chun et al., 2016). These have laid the ground work for introducing new context and textually in both language teaching and testing. They have also had a significant communicational impact by enforcing cultural connections in both old and new ways. These new elements always come with their own complexities and challenges. The potentially positive side of incorporating technology has encouraged foreign language educators to apply its advantages to enhance pedagogical practices. However, the integration of technology in the classroom cannot be devoid of problems. The introduction of new technology, at many times controversial, has had a huge impact on the perception and the process of how things really work. With the arrival of new test options through the technological channel test makers and test takers have had new realms to cover and manage. The fact that technology plays an important role is agreeable by almost all, however, with so many technological advancements in just a short time, many have had a difficult time adjusting to the now old situations. Here, we will try to cover three main topics that have gained more importance due to their tenacity and reflection. Test methods, characteristics of tests and test content will be the main focus of attention here.

3.4. FACTORS DEALING WITH E-TESTS

Technological advancement is always entertaining and scary at the same time. Stress and anxiety may have been a critical factor when dealing with tests yesterday and perhaps even today (Martin and Valdivia, 2017a; Valencia, 2017), but there are many more complications for example: what if the computer or the Internet breaks down in the middle of the exam? Or what if the hardware stop malfunctioning and perhaps do not synchronize or connect when the need arrives? With assessment being on the rise, many in the field of research and testing have been looking for ways to broaden their horizons in Language Testing through any way possible. The many advancements, the mix of technology and language and the many researches

done today has led to defining and analyzing what language abilities can be measured and assessed (Chapelle and Voss, 2008; Chen et al., 2017; Jamieson, 2005). This has led to the use and application of more technology into it all and has perhaps in ways allowed more complex analogies of test results based on how they were taken and performed.

The rapidly evolving language-technology interface has propelled dramatic changes in, and increased opportunities for L2 teaching and learning. Its influence has been felt no less keenly in the approaches and methods of assessing learners' language and researching language teaching and learning. Tests today have indeed added a great retrospect into how important it is to administer the tests, to select a proper setting and to pay attention to the time and effort it requires to conduct and properly administer a test (Hall, 2016; Kessler and Hubbard, 2017). Context is thus gaining more importance with the advent of newer technology and their use in classrooms and test centers. Time is also a critical factor as one should be able to answer and work with the system accordingly and try to compensate for the time it takes to submit the answers properly. In conclusion, test designers also need to add extra time for their tests than they normally did and consider different factors than students and test-takers are facing each time.

Regarding the characteristics and content of tests in CALT, it is no surprise that tests are now designed more freely than before (Chapelle and Sauro, 2017a; Keighrey et al., 2017; Perez-Guillot, 2019). One great example is that tests that once required multiple students to participate can now easily be introduced to individual students. Test takers can now select their answers with ease by clicking on the write answer or sending in their voice files for evaluation. This is a huge advancement regarding the old-fashioned way when students would just speak and had no way to check on what they had said. A down side at first was that students did not need to focus on their handwriting as it was seldom needed or could be used, however most professional institutes make use of smartpens.

Although the advance in technology and the mix of technology with teaching and testing has happened with warp speed, however there are some controversial issues that yet need to be addressed (Javidanmehr and Anani, 2017; National Academies of Sciences and Medicine, 2020; Onoprienko and Polshina, 2016). Some would mostly argue that new concepts and tools take time to be correctly managed and applied in the setting, while others believe that new and modern technology require less and less contemplation and analysis before being introduced to the context. Smart devices brought to

use in new and old sciences have proven to be useful beyond first perceived. However, there is still debate on the quality and quantity of such matters and how effective they are in short and long terms. The key principles discussed here are validation, test security and the concept of real control.

Validation of instrument used for teaching and tested has been by many researchers in the field (Hallit et al., 2020; Kukul et al., 2017; Nguyen-Newby and Fraser, 2020; Pumptow and Brahm, 2020). The main concern is that students may not perform as well as they did under new conditions. There are new factors introduced and many interferences that can hinder the students' capabilities. Test performance is hence at danger and concerns regarding the potential and reach of these problems are still a concerning issue.

Fusing computer technology and knowledge mapping environments creates new instructional and assessment opportunities, primarily by providing the capability for real-time scoring, feedback, reporting, networking, and Internet/Web access. While new test methods and practices have paved the way for test takers and have made answering questions much easier through selection and a press of a button or click, they have also introduced new problems concerning the face validity and the validity of test scores (Kukul et al., 2017; Pumptow and Brahm, 2020). Exam papers for example, used to have a cover page which is now mostly omitted or still needs to be designed and applied in most cases. Exam papers also had the option to correct or go back to questions when required. Also, a great aspect regarding exam papers was that they could also be used for taking notes. All considered, there are still many advantages and promises that make the application of technology well worthwhile.

3.5. ONLINE AND COMPUTER-BASED TESTS: KEY FACTORS

Identity is a key factor when dealing with new online and computer-based tests (Isbell and Kremmel, 2020; Werner et al., 2017). While students are required to enter a username and password to gain entry to the test, it is not yet certain that students have not shared their information with another third party. A video confirmation may be required in many cases like a spoken test. Another option would be to ask student to only participate at a center and not their homes. While the factor of identity is not always solved so easily, test designers have changed their view in test making and only give a portion of the score to computer-based tests and require students to participate in a

more classical matter to settle the remaining score. Students and test-takers did not have direct access to tests in the past and test pools used were safer than they are today (Esmaeeli and Ebrahimi, 2017). Students can easily download or take a screenshot of the exam items. While students are not allowed to record their test in any way, it is yet a hard task to keep everything in check before taking the test as to the availability of different gadgets and devices (Von Gruenigen et al., 2018). Computer-based exams have allowed access to the items used in tests and test designers are now required to do the rigorous task of test development more often (Kang et al., 2017). With test awareness rising among students, the validity and reliability of test items is at risk, and test designers are currently struggling to solve the issue as best as possible (Pandarova et al., 2019). Finally, students and candidates make great use of the Internet to boost their scores and get accepted in their tests (Sanz et al., 2020). Sanz and colleagues 2020 explain how everyday more companies and offices are using online tests as part of their recruitment and analysis of employee performance. They saw fit to add a verification test in order to make outcomes more valid and reliable. They chose five strategies toward their goal and found out that the modified signed likelihood ratio test (MSLRT) proved to be the best option.

New technologies, we conclude, are for the most part being used to reinforce old practices. At a time when computer technology is increasingly looked to as a way to improve assessment, more research and findings have important implications. Thus, according to the above statements, in order to achieve full control over the test environment, it is best to have a test center for administrating the test rather than having participants take tests at home. Furthermore, a great strategy to lessen the chance of cheating is to increase the number of test items and reduce answering time. Most test makers online also have the option of disordering the items so that candidates cannot cheat as easily as before. Finally, to establish real identity, each student is required to present an ID card or number before entering a testing center.

3.6. RECENT WEB SUPPORTED APPLICATIONS

The programs available today largely neglect the potential of emerging technologies to promote a broader vision. There are many software and applications for phone and computer use, and their number is increasing by the day. Most of these software and applications differ from each other in what options they have and how free these options may be. They are also leveled based on their use by different parties involved and how user-

friendly they are. Another important difference would be in how far and detailed one is able to adjust the setting. The final difference may be related to how users can connect to the services and the requirements or privacy matters they have to agree to. Here we will discuss four of these applications that are also available as web-supported applications. *Shad, Quizizz, Google Meet, and Google Forms* are the application under study here.

Shad is an application program built by the ministry of education in Iran. The coding of the software was said to be first based on another application, namely Rubika. This application is mainly installable on Android devices and has a limited web version for iOS, Mac, or Windows users. Although there have been many improvements added to the program since its release, there is still much room for beneficial changes. There are many notable advantages to using Shad in Iran. The first and foremost advantage is that this application is, totally, free. It uses free Internet, and students and teachers who use this application do not need to pay for anything, not even the data transferred on the Internet. This application comes with many different channels and groups for users to choose from. These channels and group provide invaluable content made by many users across the country. It also provides educational TV programs recorded and uploaded on a daily basis.

It also has a standard in-built test maker. This test maker is ideal for teachers who deal with larger classes and are eager to assess their students weekly. The test makers have also helped students to notice the differences between paper-based and computer-based exams. This application, being made for children between the ages of 7 to 18, does not allow users to delete their accounts after being validated. This helps to ensure a safe transition and use for all users. Many users are known to accidentally leave a class in their school or just to delete everything and start again. With this fail-safe coding, users can just go through the validation step by entering their telephone number and their national identification code (for students) to get back to where they were. There have been some bugs and problems with the application too. For example, an identification step where teachers, students, and all other administrations have to take before being able to fully use this program. The validation process was a little faulty in the past, but it has improved greatly since its update in September 2020. The program is limited in many ways for web-based interfaces. Sending voice messages, making tests, changing settings, and much more is only done through an android device. A problem mentioned by some users is that the validation step may be hard for those with old smartphones. Although it has to be properly done once in an android device and can be later used on any other

device, some have claimed that they still find it hard to have access to such needs. Financial problems in rural regions and faraway villages have been a major concern. Users have also noted that Internet connections are not all stable during the day when most users are using the application.

Google Meet is an online video conferencing service that was made from the merging of Hangouts and Google Chat. Googlers join in Google Meet to catch up on their social life and attend to studies online. This platform, although basically used for conferences and the normal chit-chat can be used to test students' language skills online. Google Meet users have grown over the recent year, that is 2020, due to social distancing protocols basically everywhere in the world (Al-Maroof et al., 2020; Purwanto and Tannady, 2020). Although Google Meet can be used for testing, Google Forms is probably a better web application for the task. This application can be used alongside other Google products, namely *Google Sheets and Google Docs. Google Forms* was mainly meant for conducting online surveys-a survey administration software. This software has also attracted much attention of late, and researchers and *Googlers* have started to take a more comprehensive look towards it (Mallette and Barone, 2013; Sandhya et al., 2020). *Google* has provided us with many educational software over the years and has for sure been one of the pioneers in the field. Google has tried to motivate, inspire, inform, and persuade us towards a greater communicational purpose. Google Meet and Google Forms are both among the most used software online and have proved advantageous over other comparing software. In the following paragraphs we will try to mention the key advantages and disadvantages of these two software.

Among the many great advantages of *Google Meet*, there are also some demerits that are of note (Kumar, 2020). Kumar 2020 mentions three pros and three cons in his article on comparing Google Meet and Zoom. The first pro he states is that Google Meet is free and a really great way for team members to communicate. It is also easy to use and has a user-friendly interface. Google Meet as free application comes with its own limitations and application purchases. The most important thing is that it only allows a limited amount of users to connect and communicate simultaneously. There have been complaints about audio and microphone problems, in Kumar's article, in the application back in 2020. Another problem is that one needs a Google ID to use this application. While Google is infamous and almost everyone has a Google ID, it does not seem logical to ask everyone to make a Google ID prior to use. Also, while many can manage different accounts and applications have been made to synchronize all accounts into one helpful

application, it is certainly not fair to ask users to log in only with a Google account. Finally, a problem that most users have mentioned is that sending multimedia through this application comes with its own difficulties.

Google Forms is an efficient and reliable online tool used to gather information and data (Melo, 2018). This tool is free to use by all. Another advantage mentioned by Melo is that this tool is used to create surveys with ease. Users with an intermediate knowledge of the Internet can easily work and adequately manage its interface. This tool works well alongside Google Spreadsheet to carefully analyze the collected data. According to Melo (2018), there are also many configurations and settings for advanced users to make better use of the data gathered and to set patterns for later surveys. Forms can easily be shared through other applications or simply by email. You can also get an unlimited amount of questions and answers from this tool without paying a single dime, as compared to other tools which require a sort of payment. Finally, a great option provided by Google Forms is that you get a preview of your form before submission.

While there is really no significant disadvantage to this tool, Melo (2018), mention some point worth consideration that in comparison to other similar tool may prove notable. The first disadvantage is that an Internet connection is always required when working with this tool. A Google ID is also needed, as like in the case of other Google tools. Although Google has always, for the most part, offered decent security and privacy features across its applications and software, many users, according to Melo, have noted that a strong password is still not a bad choice when working with this tool. Finally, while there is no limit in the questions and answers one can use in the forms, there is still a limitation in the files one can upload. For example, tests can be up to 500 Kb, images should not exceed 2 MB, and spreadsheet must be confined to 256 cells and/or 4 sheets.

Quizizz founded and launched in 2015, is an application used by many. Although not still a popular application in Iran it has gained much attention by researchers, teachers, and test developers in the field (Chaiyo and Nokham, 2017; Ju and Adam, 2018; Zhao, 2019). Quizizz is both motivational and creational in many ways. Its prominent feature is how it is combined with a game-like setting where participants are cheered and congratulated upon getting a question right. There are many ways a teacher can use this application to control the content and material shared. It is mainly based on multiple-choice tests while offering a variety of different test types. To use this application, you will be asked to make an account in order to keep track of your progress and achievements throughout this application.

There are many advantages and disadvantages to this application. There are many websites that talk about the pros and cons of using this application that can be viewed online, however, to attain more validity, we decided to choose one of the first and most viewed websites on Google. According to the article written by Lauren Hodson in 2018 titled "Technology Review: Quizizz," this digital game-based program is a great choice to add the spark in almost every classroom (Hodson, 2018). She describes this program to be more user-friendly and less stressful for students compared to Kahoot. She also states that her evaluation of programs is based on four key principles, namely: ease of use, pros, cons, and tips from the field.

Hodson (2018) believes that the platform used in this application is simple and the tutorial provided by the application is easily understood and appreciated by most users. Live chat is also available in some cases if you have not understood a question or need to consult with your teacher or student on any ground. A search bar available in this application gives access to direct data available in its almost infinite database. There is also easy access to answers and processes. Among the many advantages of this program, it can be mentioned that it is free and flexible. It has a blog section that shows the new features and a teacher recourse section which shows how teachers can operate the program. Each student has access to their own personal gameplay, and this program is compatible with Google Classroom and can be easily added to it. One can make use of already made questions and fun customizable memes are added to questions after being answered. Finally, Quizizz is and can be used for trivia and extra credit activities too (Hodson, 2018).

Although a popular application, Quizizz also has some downfalls. One of the disadvantages discussed in Hodson's Article is that there is a limit in the questions that a teacher can use. This application may be ideal for assessment and classroom quizzes; it is not however useful when testing for proficiency or summative tests. This program is excellent for checking facts and recall; however, it lacks the ability to make use of a more conducive and elaborative type of reasoning. This application is great when access is not limited, but if you are in a school full of students without proper access to the Internet and only have a room full of technology for a large number of students, then Quizizz is not a good choice for your department. Although a disadvantage at first sight, Quizizz may not have to deal with this problem as people are slowly but gradually showing more and more appeal to technology because it is getting cheap enough for more people to afford it. A third disadvantage to the application is that while memes are

fun and interacting for the students or users of the tests, the selection and setting add work for the test maker. To address this problem, one may use the memes already there in the application-memes can easily be copied and used for your own purposes. Another strategy to take in this matter would not to put too much stress in the selection and application of memes, they are mainly for amusement, and their main task is to relieve stress and not add to it. Finally, using older memes for newer work may indicate bad or poor-quality regarding the face validity of the test. Understandably, memes do add some complications to the whole process of test making no matter how fresh your perspective is. The question to be asked here is whether memes are worth the hard work and consideration that most users put into it and the answer is anonymously yes.

3.7. E-PORTFOLIO

An electronic portfolio (EP) uses electronic technologies as the container, allowing students/teachers to collect and organize portfolio artifacts in many media types (audio, video, graphics, text); and using hypertext links to organize the material, connecting evidence to appropriate outcomes, goals, or standards (Barrett, 2001). According to Ali (2005), web-based EPs are favored by many authors and especially by Barrett (1999), however, Galloway (2001) is not in favor of restricting EPs to online webpages. He feels that well-formatted and linked (where needed) Microsoft Office (Word, Excel, PowerPoint) documents would be just as effective as web pages while also maintaining the originality of the portfolio.

Barrett (1999) suggests six levels of EP software:

- **Level I:** No digital artifacts. Some videotape artifacts.
- **Level II:** Word processing or other commonly used files stored in electronic folders on a hard drive, floppy diskette, or LAN server.
- **Level III:** Databases, hypermedia, or slide shows (e.g., PowerPoint), stored on a hard drive, Zip, floppy diskette, or LAN server.
- **Level IV:** Portable Document Format (Adobe Acrobat PDF files), stored on a hard drive, Zip, CD-R/W, or LAN server.
- **Level V:** HTML-based web pages created with a web authoring program and posted to a WWW server.
- **Level VI:** Multimedia authoring program, such as Macromedia Author ware or Director, pressed to CD-R/W or posted to WWW.

Babaee (2012) states that learners can see their progress better by comparing their works with their peers and the previous works, for instance, previous writing tasks they posted in their portfolios, and as a result, they learn how to evaluate and assess their work and enjoy self-assessment. Kavaliauskiene (2004) argues that through self-assessment, learners get an opportunity to think of their own progress and find ways to change, adapt or improve, so especially the successful students regularly engage in self-assessment in the process of their learning.

The portfolio is defined as "a purposeful collection of students' works that demonstrates to students and others their efforts, progress, and achievements in given areas" (Genesee and Upshur, 1996, p. 99). It is worth mentioning that portfolio assessment is a kind of portfolios; whereas a portfolio is a collection of a student assignment samples. Portfolio assessment is the process of creating, collecting, and evaluating the contents of the portfolio (Moya and O'Malley, 1994). MacDonald et al. (2004) delineate four primary types of e-portfolios (cited in Cadd, 2012). *Working* portfolios are those used as a basis for the other three types. They consist of artifacts and reflective writing used to exemplify both growth and competence. The second type identified by the authors is the *academic* portfolio, which is a collection of artifacts completed and compiled in an academic institution. The *professional* portfolio can be based on the academic portfolio; it has similarly selected artifacts, but includes a "multimedia environment" (p. 52) with organized links to allow the examiner to move quickly among chosen artifacts. Finally, the *presentation* portfolio is appropriate when the ultimate goal is employment.

Lankes (1998) identifies additional permutations of e-portfolios. She discusses the *developmental* portfolio, which provides evidence of growth; the *proficiency* portfolio, which demonstrates mastery of a learning objective; the *showcase* portfolio, which provides a venue for spotlighting one's most accomplished work; the *planning* portfolio, which allows one to prepare for a future event; the *employment* portfolio, which documents how well one is prepared for a particular type of employment; and the *college admission* portfolio, which permits one to demonstrate one's qualifications for admission to post-secondary institutions of higher education.

Cadd (2012) explains that although the literature is rife with a variety of taxonomies, the various models do have a number of commonalities. The most widely shared features are: the compiler has chosen the artifacts included in the ePortfolio, the portfolios include some form of reflection,

and they can also easily be modified for a particular audience and intent. As Barrett has pointed out for some time, the uses and types of EPs are diverse and multifaceted (1999).

In the past, portfolios were collections of work stored in binders, file folders, or boxes. Today, computers are used as an effective tool for developing and storing portfolios given their ability to store and process large quantities of content, and they can effectively support and guide the portfolio process. These computer-based portfolios are called digital or electronic portfolios (e-portfolios). E-portfolios (e-portfolios) are gradually gaining in popularity. They offer a number of advantages over the traditional file folders and "scrapbooks." As computers are becoming more accessible (at home, in the school, and in libraries), it is becoming easier for students and teachers to develop e-portfolios. According to Farrell and Jacobs (2010), portfolios are a systematic collection of information about each student. This information consists of evidence of students' accomplishments and skills. Gottlieb (2006) suggests that portfolios are excellent ways for students to showcase their newly acquired language skills as well as to share their accomplishments. Construction and assessment of portfolios is facilitated when teachers and students have come to joint decisions regarding the *content, quantity, quality, timing,* and *presentation* of portfolio entries before the process begins. Of course, these decisions can be modified, as a class becomes more familiar with the portfolio process.

Hedge (2000) maintains that portfolio assessment is seen as a more comprehensive portrait of students' writing ability than one essay composed under restricted circumstances. Thus, evaluating portfolios instead of only one impromptu timed writing sample of students will put teachers in a better position to make informed judgments about students' writing ability. E-portfolios have been found to be a valid way to document student progress, encourage student involvement in assessment, showcase student work samples, promote students professionally, and provide a method of student learning outcomes and curriculum evaluation (Buzzetto-More and Alade, 2008). According to Abrami and Barrett (2005), an EP is a digital container capable of storing visual and auditory content including text, images, video, and sound. Some saw e-portfolios as containers for collections of evidence for a purpose and made connections with the former paper-based records of achievement. Some teachers suggest that an e-portfolio is any form of electronic folder that students will use to save anything pertaining to them as an individual learning plan, homework, and coursework; everything that relates to those students' activities, including out-of-school ones. Others,

focusing on processes, saw the benefits for e-portfolios in supporting personal organization, reflection, and presentation to a range of audiences (Meshkat and Goli, 2012). According to Sun (2002), there are some steps for creating an e-portfolio. Such information of directions of how to prepare for compiling an e-portfolio can be shared with students at the beginning of the course so that they follow the process in assembling their learning products for future inclusion into their portfolio:

- **Step 1:** Save and keep all course work (writing assignments, projects, etc.), on a disk;
- **Step 2:** Design and begin to build e-portfolio;
- **Step 3:** Create a new file which can contain a cover page on which one can create a Table of Contents (indicating what is to be included in the portfolio);
- **Step 4:** Copy all saved course work onto this new file in a sequence as desired;
- **Step 5:** Make Book Marks and Hyperlink each course work assignment to its title listed in the Table of Contents;
- **Step 6:** Save the whole file and submit it to the instructor.

3.8. EDMODO: A COMPUTER-FACILITATED WRITTEN DISCUSSION

Dillernbourg, Schneider, and Synteta (2002) argue that virtual learning environments can be identified by the following features:

- A virtual learning environment is a designed information space;
- A virtual learning environment is a social space: educational interactions occur in the environment, turning spaces into places;
- The virtual space is explicitly represented: the representation of this information/social space can vary from text to 3D immersive worlds;
- Students are not only active, but also actors: they co-construct the virtual space;
- Virtual learning environments are not restricted to distance education: they also enrich classroom activities;
- Virtual learning environments integrate heterogeneous technologies and multiple pedagogical approaches;
- Most virtual environments overlap with physical environments.

There are a number of commercial/charitable virtual learning environment software packages available including: Blackboard, WebCT, Lotus Learning Space, COSE, Ning, Elgg, Tuenti, Myspace, Google docs, Etherpad, Moodle, Schoology, Mybigcampus beside a lot more. The VLE which is the focus of this research study, Edmodo, is available at no cost. *Edmodo* was developed by two former Chicago education administrators, Nic Borg and Jeff O'Hara in 2008. Primarily used in the United States, it has served over 38 million users. It makes use of the growing social media technology in its appearance and design. Edmodo has seen a rapid increase in the last few years with millions of users joining in, and appears to be a growing trend in the virtual learning environment industry. Educational networking sites are used by educators for both professional development and as a teaching tool, and are usually restricted to selected users and not available to the general public.

Online social networks are an excellent communication tool for knowledge construction based on social relations, conversation, collaboration, and shared work (Arroyo, 2011). Miller (2011) explains one of the benefits of virtual communities that these communities can compensate for the lack of community in the real world.

The Edmodo website is a free and secure learning platform designed by Jeff O'Hara and Nick Borg in 2008 for teachers, students, parents, schools, and districts, and is available at www.edmodo.com. This site looks similar to Facebook, but is much more private and safer because it allows only teachers to create and manage accounts, and only their students, who receive a group code and register in the group, can access, and join the group. Edmodo can be seen as a learning management system (LMS) which can facilitate teachers to set up and manage their online classes easily. The site provides a simple way for teachers and students in a virtual class to connect and collaborate. For example, teachers can send out quizzes and assignments, give feedback, receive completed assignments, assign grades, store, and share content in the form of both files and links, maintain a class calendar, and conduct polls, as well as send notes and text (SMS) alerts to individual students or the entire class. Students can also share content, submit homework, assignments, and quizzes, receive their teacher's feedback, notes, and alerts, as well as vote on polls (Embi, 2011).

The initial interface that the tool offers for teacher and students is very similar, but with some extra functionality in the teacher side, like: The first action offered by the tool for teachers is to create the class groups as it is

required. Each group has a number of options that can be managed, if the user has a teacher role. The teacher can view the group members (students and teachers). He can archive and/or delete a group if it is necessary. From the public view, we may highlight that the teacher can decide the comments to be shared with people who are from outside of a specific group. In terms of communication that is performed by using a board, it could be presented, by the teacher, to an entire group or as a private individual for each student. The teacher has four types of communication: (1) messages, (2) alerts, (3) assignment (or a task which can be rated later) and (4) vote. It is possible to add to each communication element: a file, a link (URL) or an existent item from the digital library. It has a section called "Who?" Where users can send messages in deferent ways to users: individual (private), students' group, teachers, and parents.

On the student side, the communication options are more limited than those of teacher, where they only have the option message, and they can only communicate in two ways: (1) with the entire class in a public way or (2) in private way with the teacher. Both teachers and students have access to a calendar, depending on the classes they teach, and the students to the classes to which they have joined where also they can view the deliverables or dates set by the teachers. These management features convert the Edmodo tool in a great tool for organizing and planning. For storing and sharing files, there are two points of view in the Edmodo platform: The teacher view, where he can share folders with material for one or more of his classes. And the student view, where he has the option pack, with a space of 100 MB to store his files and/or class assignments.

Edmodo provides opportunities for students and teachers to engage in social networking activities, thus providing safe environments for sharing ideas, asking questions, and collaborating on education-related activities (Trust, 2012; Werner-Burke et al., 2012). The social nature of the online learning environment created by Edmodo provides the essential components of opportunities for student motivation and engagement required for learning (Werner-Burke et al., 2012). One research study found that Edmodo was preferred by teachers over other educational social networking platforms (Trust, 2012). Advantages reported included a safe place for sharing ideas, asking questions, and collaborating with other educators. Another study involving middle school students found that Edmodo was an effective tool for computer-facilitated written discussion (Werner-Burke et al., 2012).

3.9. TECHNICAL APPROACHES TO CALT IN RECENT YEARS

In the previous paragraphs, many topics regarding the general issues, the advantages, and disadvantages of CALT (in the past and perhaps the present), controversial issues in CALT and implementing CALT through authoring various tools was discussed. With the upcoming of new trends and technology, there is always many ups and falls. Many would choose to stay with the old ways, and many would argue to risk venturing forth with open arms. Today, there is significant data to support both parties, but the question is not only about the past or the present, it is also about the future. In the following paragraphs, we will discuss technical approaches to CALT in recent years and will try to dwell into the future and explain the dimensions, threats, and promises that CALT might have. A group of researchers accepting the fact that the current technological trend in language teaching was aimed to improve the current situation asked 100 English language teachers about the effects of technology (Farooq and Soomro, 2018). They wanted to know the teachers' ideas regarding the following matters which were: planning and preparation, classroom management, and professional responsibilities. The results indicated that while teachers were well aware of how technology would boost their and that of their students' performance, they still neglected to consider the application of technology when planning and preparing for the class activities. This research shows that while teachers believe that technology has indeed improved their teaching context, it still needs better facilities and trust to be applied correctly.

In another research carried out by Kalguna (2021), it is highlighted that although due to current events and the shift to online teaching and testing, negative trends have been observed in higher education. She indicates that no one was truly prepared for the change to online education and that this transition perhaps required more time and consideration. Among many factors being absent from online learning, the lack of personnel communication and the atmosphere of the university were mostly missed. For foreign language students to get acquainted to socio-cultural codes of another country, they need to learn to blend physically and mentally in the society, which is mostly the university they are studying in (Kalugina, 2021). Communication via the Internet and the use of phones and computers is said not to compare to the livelihood of face-to-face speech and in turn, paves the way for more communicational barriers. Another problem mentioned here is the transfer students between universities and that most faculty members were not yet trained or ready to switch to a new way. This sudden change led

to programs being delayed and courses being canceled. It also led to many students passing their courses just because everything was simply easier than it used to be. Finally, she concludes that the lockdown happening in most universities, if not all, affected the quality of education and created the condition for more social inequality between countries and even within one region.

3.10. TECHNOLOGY ASSISTED LANGUAGE INTERVENTION

In a technology assisted language intervention (TALI), some researchers tried to help some deaf or hard in hearing children ranging from the ages of 3–12 (Meinzen-Derr et al., 2021). Around 41 candidates were selected. Around 21 students received the TALI while others received treatment as usual (TAU). Results showed that with help from technology, the 21 students who were under the treatment achieved a better understanding of the spoken language. This approach to teaching proved more useful in children who had persistent language delays. Seeing that the impact of TALI was beyond imagination in this research, the researchers highly recommend applying such strategies in similar classrooms.

With the growing demands and improvements that we have had over the years, assessment literacy has also gained significant importance (Coombe et al., 2020). According to these researchers, many in the field should learn, unlearn, and relearn most key principles in the field in order to have literacy over the subject matter. To be literate, according to these researchers, is to know the conceptual frameworks, related studies, components, and their interrelationships. They argue that a better understanding and comprehension on this topic can and perhaps will help all parties involved to better advance and progress in assessment strategies. Validity and reliability of tests have always been a major concern. Construct validity among all others, has gained more attention recently (Jin and Yan, 2017). According to Jin and Yan (2017), construct-irrelevant variance is a significant factor in high-stake tests. In their study to compare paper-based writing tests with computer-based writing test, they focused on the analysis of test scores, text complexity, language errors and writing processes. The results showed that most cognitive activities were the same. However, in cases where test-takers had more familiarity with and around the computer, they performed exceedingly better. They conclude by saying that the construct validity of old tests should be revised and remodeled. They believe that computer literacy

plays an important role with construct measured. Another important matter regarding the current trends in CALT is corrective feedback (Ai, 2017). Ai (2017), argues that although corrective feedback has long been discussed and reviewed by many scholars in the field, it is yet not clear how significant this corrective feedback is. To elaborate on the type and extent of this matter, Ai explores the design, effectiveness, and learners' perception from a very general to a very specific graduated approach using an intelligent computer-assisted language environment. The results show that this approach is helpful in learners' self-identity and self-correctness in certain grammatical aspects. Ai concludes his research by mentioning some of the difficulties of applying such an approach in a computerized environment.

To summarize the key aspects mentioned in the chapters above about current trends, one can mention the quality and test efficiency in test development, the evaluation of linguistic responses in data analysis and the technical awareness in users (Gurcan and Cagiltay, 2020; Pill, 2018). The quality and test efficiency in test developments deal with complex issues that test developers face when developing tests regarding the material used, tools needed, and purposes behind these tests. The evaluation of linguistic answers when elaborating the data shows the amount of data that can be statistically analyzed based on the machines and tools used. Technological awareness elaborates topics of technological issues regarding methodologies, test evaluation and potential influences of technology in test processes.

The emerging issues that test developers and users will have to face will deal with reliability, construct validity, test authenticity, interactiveness, impact, and practicality (Kiliçkaya, 2017; Tan, 2018; Zhang and Lin, 2017). The reliability of new tests is based on how computers analyze and see the data. Construct validity dealing with the fact that some programs may not validate some related answers with the required answers and that they may fail to place value, points, and score that the answers may get if a real-life person was correcting the exams. The authenticity of tests requires a careful look into how tests are designed and the content that they use. While computer-assisted testing has given a new perspective into interactiveness between the content and aim of a test, short items that are now a popular will in turn greatly endanger this factor. Some test users are yet to get accustomed to the use of technology in test-taking and test development; this in turn causes problems when debating the impact of these tests. Finally, regarding the practicality of these tests, there are still issues, namely the cost efficiency and test security in high-stakes testing.

The next significant factor when dealing with CALT is the impact it has, has had, and will have in test development, test-taking, and data analysis (Chapelle and Sauro, 2017b; Min et al., 2020). While dealing with such factors, it is best to discuss the dimensions and applications of CALT. The dimensions are the reach of these techniques and the applications refer to promises and dangers of applying such strategies in tests. The availability of such techniques and the issues it will concern are the paradigms of this discussion. In the paragraphs below, these factors will be reviewed and elaborated based on recent research and articles. English for Specific Purposes has been a popular trend these days (FitzGerald et al., 2018). These researchers claim that the personalization of learning can be seen almost everywhere. This chapter discusses that while technology-enhanced learning has had many promises, it has kept and lived up to only a few of them. Personalization is in fact something genuine in nature and is hard to apply in such context. These researchers attempted and made a framework to correctly apply this trend into educational technology. They hope that their framework would help improve the existing practices and suggest design guidelines towards further approaches. In another article, the importance of interactional competence is discussed (Galaczi and Taylor, 2018). It is said in order to have such competence, one should regard both cognitive and social dimensions. This chapter stresses the question of whether such competence is operational in the technological education or any other challenges associated with this activity. These researchers mention some key principles to take note of when moving ahead into the future. To have a valid and reliable construct, our approach and strategy must have a full representation and construct relevance. More criteria should be analyzed as more technology is introduced. Finally, to set all actions toward the assigned goals and aims of the system, it is best to have a clear definition of what tools are being used and their appropriate application in the process of teaching and testing.

Not like the past, students of today have access to a variety of information online. Student have thus started to constantly question the quality of information they are receiving (Pérez et al., 2018). A critical evaluation of source reliability was studied in this chapter. Perez et al. (2018) studied the competence, intention, and pre-publication validation of the content. The results showed that top student showed less interest to non-related links, while also making references to more reliable resources. As a result, it is discussed that a good solution to source reliability is the application of a tentative syllabus, in which students can help in identifying acceptable

resources in a critical way. It has been argued that technology is improving and used so fast that it is sometimes just overwhelming (Kessler, 2018). It is a challenge, even for the most motivated, to find the right tools, applications, and opportunities to incorporate towards their or their students learning. There is now an abundance of resources available. These resources are not always valid or reliable, but they do mostly always offer some sort of insight or perspective regarding the topic we are looking for. According to Kessler (2018), most users of technology prefer to stick with what they already know. Kessler aims to prove that if applied correctly, the technology most of us use on a daily basis can be a great source for learning and practicing our language skills.

Tavoosi (2020) investigates the role of formative assessment in the classroom environment. He claims that a teacher's assessment performances and strategies directly affect students' learning. He mentions that although Iranians are foreign language learners of English, they still learn and practice English through five sources (Tavoosy, 2020). These five sources are: English with friends and families, English in the films, songs, and series that they watch, English in their work place, English in schools and universities, and English in private language institutes. A problem that is mentioned is that in the classical methods where technology was not a major role in learning, students who changed their lifestyles u\lost touch with the English language and after a while their level of knowledge and proficiency degraded (Sadeghi et al., 2013). With the introduction of technology and its vast application, it is hoped that even in countries where English is a foreign language, students will not lose touch with the language as they would always have teachers everywhere they would look. Teachers who through technology have now taken many shapes and designs.

Plakans (2018) reviewed articles on language testing addressing these key factors: *validity, performance assessment, classroom assessment, and technology*. A decade of studies between the years of 2007–2017 were researched. Three journals used in this study were: Language Testing, Language Assessment Quarterly, and Assessing Writing. The chapter ends with future considerations in the field. In addition, two other factors also gained much attention over this decade (Plakans, 2018). Differential item functioning (DIF) was the focus of many studies in 2007 while generalizability theory (G-theory) shifted the attention towards itself in 2017. Other notable topics of study were test score use, test preparation and test takers' perceptions (Brunfaut et al., 2018; Fraillon et al., 2020; Khoshsima and Toroujeni, 2017).

Plakans (2018), mentions that while there are still many gray areas left in the field, future studies will mostly involve issues addressing fairness, ethics, and different language policies. To achieve such goals, a variety of research strategies and methods needs to be used, namely: narrative inquiry, ethnography, and critical lenses. She also mentions that there would be a need for detailed social and user-focused studies and that the four major themes will require further studies. In another research focusing on graphic lexicons for the assessment of spoken language, the writers mentioned that assessment of spontaneous spoken English is currently limited. This limitation is mainly because the automatic speech recognition (ASR) currently available does not provide significant data based on its accuracy (Knill et al., 2017). A problem now more common than before is that with the acceptance of English as a Global language, there are now many different accents and dialects used freely and without any strong resistance. While this may be acceptable in a normal society, many online software has yet to recognize the vast amount of dialects and accents currently in use. Although there seems to be a vast source for non-native learners to practice their English speaking in all levels of language proficiency, there is still not so many standard English resources available online. Knill (2017) states that: "Graphemic-based English ASR is typically worse than phonetic-based due to the irregularity of English spelling-to-pronunciation but here lower word error rates are consistently observed with the graphemic ASR." To improve the current situation, Knill and colleagues believe that more research is needed in audio and fluency derived features, including some phonetic level features; and phone/grapheme distance features.

Some researchers ventured into writing in English, stating that many students now use a variety of different tools when dealing with writing tasks in L2 (Oh, 2020). They claim that the problem is that most of the tools normally used to help writers in their task are still not allowed when taking tests. While all tests try to be authentic in all senses, some fail to see that using writing tools is what happens in real life and that almost no one today writes a text without the use of such tools. Test fairness is another factor mentioned in this chapter mentioning that memory and retention are not the only skills required when writing a text.

Based on what has been seen and said regarding the dimensions and application of these techniques, a conclusion has been reached. Assessment has been made easier. Test correction and feedback are no longer time consuming and laborious. Progress can be viewed in different levels or stages in learners' progress, and a better understanding is achieved in this

regard. Study have found that the different project provided the students with an opportunity to experience new technologies; learners experienced the pleasure of learning and thus increased their learning possibilities. The students liked and approved of learning English using the Internet, but had differing opinions about its benefits. The study demonstrated that learners bring different perspectives to TELL, and that learners who are passively oriented towards Internet English learning require careful guidance from pedagogical applications to such approaches. Making students aware that learning English through multimedia technology demands new learning strategies and self-directed learning is a crucial first step. Some pedagogical suggestions provided to effectively use computer networking in second-and foreign language classrooms are given in related literature.

Studies exploring computer activities including simulations, drill, and practice, educational games, tutorials, database management, word processing and writing, and graphing were included. Assessment of the efficiency and effectiveness of computer technology in the social studies remains in its infancy with a limited research base. An infinite amount of content is now made available through the use of different applications and the World Wide Web (Mei et al., 2018; Tao et al., 2018). Students have access to different forms of content and can practice based on their desire, needs, and wants. Test developers also can use and learn from the different tests available to them through the Internet and make significant decisions and use of the available content. In conclusion, the new vast content now in reach gives way for new opportunities and promises in the upcoming years.

Technology has been applied to make everything easier. In performance matters regarding the development and use of CALT governed tests thing have been no different. Tests are now made faster and with more ease than before. Also, assessment has been made simple with the use of different data analytics and feedbacks easily available. In summary, recent technological advancements, and development, now not a foreign topic, have made everything easier and simpler. Access to a variety of diverse content and methods has provided a freshness to CALT. Factors such as stress and anxiety are now less seen, and students/test designers are now more motivated and eager when dealing with these types of tests. Students and teachers now familiar with such tests find it easy to go through them as they are now more understandably more familiar. Motivation has taken the place of anxiety and will lead to new opportunities in the future to come (Martin and Valdivia, 2017b; Zhou and Wei, 2018). Time in testing has had a new meaning ever since technology has been added to the equation (Chapelle and Voss, 2008;

Douglas and Hegelheimer, 2007; Salmani, 2020). Students and all parties involved need time to get familiar with the tools and technology they are going to use. While a demerit in the short run in will prove advantageous in the near future. Students/teachers will get to know their new context in testing and will make use of the facilities and tools provided to them. In conclusion, there are still many important factors that will cause problems in the application of these tests, however, there are more merits and pros when dealing with CALT tests of today.

Finally, existing literature on the effectiveness of technology uses in language education is very limited in four aspects: (a) The number of systematic, well designed empirical evaluative studies of the effects of technology uses in language learning is very small, (b) the settings of instruction where the studies were conducted were limited to higher education and adult learners, (c) the languages studied were limited to common foreign languages and English as a foreign or L2, and (d) the experiments were often short-term and about one or two aspects of language learning (e.g., vocabulary or grammar). However, the limited number of available studies shows a pattern of positive effects. Technology-supported language learning is at least as effective as human teachers, if not more so.

This literature review aimed to elaborate some if not all of the significant factors in language testing and assessment when dealing with technology. While most technology can be accessed offline, almost all of them provide great and noticeable advantages when connected to the Internet. Most tools are now used in combination with other tools as add-ins or by allowing files to be saved in different formats. New technologies open opportunities for new and fresh minds to join the digital trends of today. Finally, learning how to work with different digital tools has become a necessity for students across the globe. This competency will help all fields, especially those related to language to progress more efficiently.

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Chapter 4

Online Learning During COVID-19 Pandemic

CONTENTS

4.1. INTRODUCTION

By the end of 2019, the great Chinese technology centers in Wuhan face a unique coronavirus epidemic, which thousands of Chinese had eliminated over the extension period that was 50 days, and thousands of others are sustained. According to Shereen et al. (2020), a Chinese scientist termed the unfamiliar virus that presented itself in 2019 as COVID-19 (Coronavirus Disease 2019). It is the latest deadly virus to spread in the world very fast, creating a serious universal pandemic (Spagnuolo et al., 2020).

Afterward, the World Health Organization (WHO) had reported over 2 million COVID-19 cases and over 100,000 deaths, from December 2019 to mid-April 2020 all over the world, affecting over 200 countries. The initial case of COVID-19 was discovered on the 25th of February, 2020, in Croatia (CRO), and later on, various approved cases continuously grew. Additionally, active situations have modified the explosion around the world during a month. A pandemic has unavoidable and unmanageable results in several businesses of the world. After a while, face-to-face learning stopped in near 120 countries; almost a million students are involved with COVID-19 all over the world.

Overall, universities closed and were set apart because of the COVID-19 epidemic, the majority of teachers and students are pleased with shifting to online education (Toquero, 2020). Needless to say, a smooth transition from a traditional educational environment to a distance and virtual environment is not one done overnight. Rather, this transition involves different barriers and difficulties (Crawford et al., 2020). According to Kaur (2020), as the time of the end of the pandemic is unknown, educational institutions worldwide have opted to make use of the technical facilities at hand to develop for students online learning material related to all academic fields. As declared by Kaur (2020), COVID-19 has forced academic experts to rethink the conventional method of face-to-face instruction and to start considering distance learning as a suitable alternative to make up for the classroom void for a span of three to four months, thereby decreasing the danger of infection for students before traditional activities are continued. The talented members of world-famous universities have started to get online professor certifications to provide online teaching to their students. Meanwhile, talent and personnel organs are discovering methods of using online learning plans. They are already just applying the performance by face-to-face teaching. Nevertheless, there are numerous questions about the education feature after changing to the online method (Sahu, 2020).

The talented individuals of world-famous universities began to get online professor certificates to teach their students online. A system is working via E-learning (Azzi-Huck and Shmis, 2020; Shahzad et al., 2020). Nowadays, E-learning is getting very popular all over the world. Providing learning by technology and the Internet is defined as E-learning (Gros and García-Peñalvo, 2016; Hong et al., 2017; Aljawarneh, 2020). Nearly all the universities and colleges have expanded the E-learning entry of their students and faculties (Moore, Dickson-Deane, and Galyen, 2011).

Nowadays, E-learning is becoming highly well-known all over the world. Nearly all the schools and universities have expanded the E-learning entry of their students and departments (Moore, Dickson-Deane, and Galyen, 2011). As stated by Azhari and Ming (2015), E-learning, in the 21st century, makes a greater important impact on all student categories, whereas the part-time and Full-time or distant learning student in the better education institution. Hence, E-learning is included a bigger technology-based learning phrase within webpages, video teleconference, learning entrances, mobile apps, YouTube, and billion kinds of free possible websites for combined learning instruments. Nowadays, E-learning is improving the awareness of students, still the academic employee and expert and business people skills by the Internet (Adams, Sumintono, Mohamed, and Noor, 2018; Chopra, Madan, Jaisingh, and Bhaskar, 2019).

As stated by Azhari and Ming (2015), in the 21st century, E-learning makes a greater important impact on all student categories, whereas the part-time and full-time or distant learning student in the better education institution. Hence, E-learning is included a bigger technology-based learning phrase within webpages, video teleconference, learning entrances, mobile apps, YouTube, and a billion types of possible sites on the Internet offered without charge for combined educational instruments. The best universities are preparing online courses for their students through and outside of school. University teaching and learning models will be possibly modified in 10 to 15 years through the great rise of the Internet, so it depends on male and female students using the E-learning portal. Meanwhile, most of the world has provided the request to close the general school and upper education closing in order to tackle the COVID-19 pandemic as an urgent gauge to stop infection distribution. The best colleges are preparing online classes for their scholars through and outside of school. University instructing and educational models are likely to be altered in 10 to 15 years through the extraordinary ascent of the Internet, so it relies upon male and female

students utilizing the E-learning format. In the meantime, the vast majority of the world has given the solicitation to shut down the general schools and higher education in order to handle the COVID-19 as an earnest measure to stop infection distribution.

4.2. INTEGRATION OF TECHNOLOGY

The improvement of technology in the 21st century has got a significant role (Flogie, Lakota, and Aberšek, 2018; Ilmi, Sukarmin, and Sunarno, 2020). Technology can help people with their work in many fields that contains the education domain (Puloo, Juniati, and Wijayanti, 2018; Purwaningsih, Nurhadi, and Masjkur, 2019). The improvement of technology in the 21st century plays a significant role (Flogie, Lakota, and Aberšek, 2018; Ilmi, Sukarmin, and Sunarno, 2020). Many students worldwide were forced to transfer from face-to-face instruction to online learning mid-semester because of the COVID-19 pandemic. Individuals have restricted data processing capacity, and it is expected that combinations of learning modalities can bring about cognitive over-burden, affecting the capacity to adequately learn new data. Additionally, Bower (2019) declared that should students lack confidence in the technology they are utilizing or do not derive a feeling of cognitive engagement and social connection, the outcome may have a negative influence on their learning results.

Numerous students worldwide had to move from in-person instruction to learning online mid-semester because of the COVID-19 pandemic. Individuals have restricted the capacity of information processing, and it is expected that blends of learning strategies can cause cognitive over-burden, influencing the ability to satisfactorily learn extra information. Furthermore, Bower (2019) announced that should scholars have insufficient trust in the technology they are using or should they not derive a feeling of cognitive commitment and social interaction, the result may negatively affect their learning outcomes.

Given technology is utilized adequately, scholars, and instructors can engage together and cooperate (Bower, 2019; García et al., 2018; Gonzalez et al., 2020). Smooth transitions to online learning rely upon the user's aim as well as the involved technology's effectiveness (Kemp, Palmer, and Strelan, 2019; Yakubu and Dasuki, 2019). The higher the level of users' acceptance, the more effective the online learning (Tarhini, Hone, Liu, and Tarhini, 2016). Thus, evaluating the variables associated with the utilization and acknowledgment of technology is significant. E-learning can provide

course contents online thanks to the extensive utilization of present-day innovations, in particular hardware (PCs, laptops, smartphones, etc.), and program resources (educational management frameworks, programming applications, sites of social media, etc.), (Amory, 2010; Khoza, 2019). Therefore, paying little mind to challenges like the pandemic, students can easily access course information/content wherever and whenever as long as hardware and software assets are accessible.

4.3. LEARNING SHIFTING TOWARD ONLINE

4.3.1. Digitalization of Education

Utilizing new modern technologies in the English as an EFL setting drew the attention of the practitioners and L2 professional researchers. Currently, mobiles have been incorporated in L2 classrooms to assist the process of language learning. The use of this technology and distance learning become a must during the CORONA virus attack in Iran. In response to Iran's coronavirus outbreak in late February, all educational settings were closed. This unexpected decision left the system of education in limbo. To minimize the effect of the prolonged shutdown, many teachers should employ different social networks as a base platform to teach online instruction. The majority of school teachers used common messaging platforms such as Skype, WhatsApp, Telegram, or a learning management systems (LMS) to teach. Mobiles with all capabilities became accessible in all urban and rural areas of many countries. In effect, in many countries, the widespread access to such a sophisticated device have rather changed the landscape of electronic learning (E-learning). In fact, it can be said that mobile learning may be considered as the new branch of e-learning. It can serve as an extension for learning in a new environment with new capabilities (Bilos, Turkalj, and Kelic, 2017). Almost everybody can feel and appreciate its importance in educational environments (Hashemifardnia, Namaziandost, and Rahimi, 2018). The digitalization of education comprised different aspects of quality that sharpen critical thinking skills, promote cooperation, and teamwork (Tømte, Fossland, Aamodt, and Degn, 2019). Kruidenier (2002) claims that the concept of digitalization in foreign and L2 learning context is an important educational concern.

4.3.2. Online Learning and Distance Education

Wilde and Hsu (2019) define online or distance education as the students being physically remote from the teachers, thereby necessitating a delivery method. Technology mediates the interaction between the instructors and the students; moreover, the format of the learning setting (where the tutoring takes place) is highly impactful on learning results (Bower, 2019; Gonzalez et al., 2020). According to Hodges, Moore, Lockee, Trust, and Bond (2020), having been analyzed for decades, online teaching can be effective when there exists detailed instructional design and planning. Technology mediates the interaction between instructors and students; moreover, and the format of the learning setting (where the tutoring takes place) greatly impacts learning outcomes (Bower, 2019; Gonzalez et al., 2020).

Online teaching has many different forms, like E-learning, distance education, and networked learning. It is regarded as an instructional setting that is carried out by the Internet and can be entirely online or combined with face-to-face instruction (Sison and Brennan, 2012). Furthermore, it can be characterized as a teaching and learning method using Internet technologies to interact and collaborate in an educational context. Moreover, because of the pandemic, universities had no choice but to end face-to-face education and send student's home; hence, universities had to deliver courses through online portals. Similarly, as delineated by Shahzad, Hassan, and Aremu (2020), education industries are adopting the use of technology, including video conferencing platforms like Zoom, Microsoft, Webex Blackboard, and Google Classroom. Consequently, this will be improving E-learning comprehensively (Chen, 2010).

Additionally, due to the pandemic, colleges had no choice but to end in-person teaching and send students back to their houses; hence, universities had to deliver courses through online portals. Similarly, as delineated by Shahzad, Hassan, and Aremu (2020), education industries are adopting the use of technology, including video conferencing platforms like Zoom, Webex Blackboard, Microsoft, and Google Classroom. Consequently, this will enhance online learning extensively (Chen, 2010). According to Bansal (2020), because of COVID-19, UNESCO (United Nations Educational, Scientific, and Cultural Organizations) recommended that educational institutions take up online teaching founded on social distancing. As delineated by Sanford (2020), online teaching is a procedure involving the absence of the instructors and students whose locations are separate during

the teaching process. It is likewise possible for the participant to have separate times (Smyrnova-Trybulska et al., 2019).

According to Bansal (2020), UNESCO recommended that teaching institutions take up online education founded on social distancing because of the COVID-19 pandemic. The term "online" refers to "possible" and so it is important that the educational process be finished tailored to any possible circumstance. The online teaching setting confronts a few technical and systematic issues when it comes to the sharing of information and management. The essential elements constituting the online teaching procedure include interaction, the sharing of data, as well as management or the board of the organization. Technologies, PC apparatuses, as well as other IT sources, have been utilized to take charge of the educational setting, members, and the validness of interaction (Gadre, Cudney, and Corns, 2011). In the pre-COVID-19 world, "the expansion of e-learning products is one of the fastest-growing areas of education" (Biasutti, 2011, p. 1865). Indeed, Due to the circumstances and conditions during the COVID-19 pandemic, sustainable learning models have been presented in the online framework. According to Pusvyta Sari (2015; as cited in Wargadinata, Maimunah, Eva, and Rofiq, 2020), online learning depends on the overgrowing advancement of technology and communication and has become a current alternative learning model. Online education is an Internet-based instructive procedure. It is a sort of distance instruction that offers educational experiences not only to children but also to grown-up students and provides access to learning from far off regions or for the individuals who cannot go to class, vocational school, or college for various reasons. Distance education confronts not only problems related to the distance of locations but also the inability to go to classes in-person for various reasons (Hrastinski, 2008; Moore et al., 2011; Singh and Thurman, 2019; Watts, 2016; Yilmaz, 2019).

The experience of online education carried out through distance learning can be either an asynchronous or synchronous one. On the one hand, asynchronous learning refers to when students decide on their own when to partake in learning through different media means, for example, through email or group discussions. Students have the chance to sign in whenever they choose to and learn at their preferred pace by communicating and performing activities. On the other hand, as declared by Hrastinski (2008), synchronous learning takes place through live video as well as audio conferencing with prompt feedback.

With the advancement of technology and communication, students have been progressively requesting online access, and colleges and schools respond by attempting to fulfill these needs (Song, Singleton, Hill, and Koh, 2004). Following that, online learning empowers the fulfillment of more satisfying services for students (Putranti, 2013). Students in general, and Arabic language students, specifically, had the opportunity to learn a great deal through online networks. For this purpose, many different applications are utilized, for example, *YouTube, WhatsApp, Facebook, Instagram*, etc. Students are growing accustomed to this and find it easier to gain access to learning materials that are offered through e-material (Ibrahim and Febriani, 2018), Blogs, Wiki, and social networking sites (SNSs) (Saekhow, 2015).

Bringing forth effective and flexible contexts that enhance mutual interaction by removing time and location issues, online teaching opportunities were well-received (Biasutti, Frate, and Concina, 2019). Such online practices involve high-quality online education techniques or courses, and are referred to using various terminologies, namely "distance education," "e-learning," "virtual learning and teaching," or "online learning and teaching." What they all have in common is that they all "refer to the method of content dissemination and rapid learning through the application of information technology (IT) and internet technology" (Zhou, Wu, and Zhou, 2020). Bringing forth powerful and adaptable contexts that enhance mutual communication by eliminating the issues of time and place, online teaching opportunities were well-received (Biasutti, Frate, and Concina, 2019). Such online procedures involve excellent online teaching techniques or classes, and are referred to using various terminologies, namely "distance education," "e-learning," "virtual learning and teaching," or "online learning and teaching." Accordingly, students are characterized as distance students or as "students using online, Web-based instruction at a distance from the main campus" (Cain, Marrara, Pitre, and Armour, 2020). Indeed, overcoming eliminating temporal and geographical impediments, these online teaching techniques have versatile, adaptable, and individualized qualities and cultivate self-governed learning (Gacs, Goertler, and Spasova, 2020). Without a doubt, when it comes to pedagogy, the strategies and methods of distance learning, remote education, and online teaching are not regarded as new or obscure. Be that as it may, due to the pandemic, educational strategies "have taken on renewed salience" (Williamson, Eynon, and Potter, 2020).

When assessing this type of emergency remote teaching (ERT), colleges, and universities must understand these differences as they work

to preserve education during COVID-19 (Hodges et al., 2020). Talidong (2020) asserted that to emphasize the distinction between online teaching during the pandemic and excellent online teaching prior to it, different terms like ERT, emergency eLearning, or emergency distance education (EDE) is utilized by specialists for the new online education. Hodges et al. (2020) described ERT as the "temporary shift of instructional delivery to an alternate delivery model due to crisis circumstances." Its fundamental goal is to offer impermanent help for continuity in learning. It has the fundamental goal of offering temporary support for the sake of continuity in education. For this reason, according to Gacs et al. (2020), "online education" is different from "emergency online education" or "emergency distance education." Barjeteh, Movafaghardestani, and Modaberi (2020) believe that the digitalization of education and moving from top-down to bottom-up processing in teaching vocabulary seem necessary during the attack of COVID-19. They maintained that the digitalization of education demands different layers of qualifications ranging from teacher training to providing infrastructures, providing such a context can generate an effective educational outcome.

4.4. BENEFITS AND LIMITATIONS OF ONLINE LEARNING

According to Fageeh and Mekheimer (2013), online learning can be quite beneficial to English language learners since they can take part in both asynchronous and synchronous learning activities to enhance their language. As it is unnecessary to be in the same physical location, participation rates have risen. Furthermore, Fedynich (2014); and Yilmaz (2019) have claimed that online teaching lowers travel and other costs that were needed when attending in person, and has provided learning chances for adults with full-time or part-time jobs, thereby being cost-effective. Additionally, since users do not need to come face to face with one another, online education is regarded as a highly convenient method for communication.

With the help of online learning, a new approach to encouraging student independence has been introduced. Students can now process language information using online peer interaction and feedback provided by their teachers. Social media has had an immense influence on language learning in the last decades (Reinhardt, 2019). It incorporates formal foreign language learning in informal learning designs with the absence of space and time limits. Additionally, online learning media makes it easier for students to interact with and share language information among users of social media.

Learning languages online brings about transformative learning and opens up a constructive approach for students to independently discover the meaning of learning. The online learning process has led to a constructive mindset in students (Smith, 2017). Peters (2018) declared that the degree of students' responses increases through online media, and the latter can even encourage students to ask more questions and receive more clarifications from their teachers. Robinson (2016) has declared that it is the responsibility of language instructors to create, manage, and provide educational resources that improve learner's performance. Nevertheless, some classes may be more suitable for online education than others. For instance, conversation classes or courses that emphasize increasing L2 pronunciation skills may have a hard time to adapt online. Writing courses may struggle in this matter as well, due to the asynchronous nature of writing activities and the written corrective feedback. The online learning approach has many benefits compared to the face-to-face one (Heap, 2020).

4.4.1. Flexibility of Time

Students can learn more flexibly when lecturers choose to carry their classes online. In other words, students can accommodate their timetable all the more without any problem. Since educators plan their classes online, students can collaborate with them and their classmates through online video. At the same time, live conversations can be carried out between the participants of the course and the lecturer.

4.4.2. Flexibility of Environment

Online learning allows both students and lecturers to select a learning environment that they are comfortable with. Students are not obliged to attend an actual class when lecturers conduct their classes online, and this is highly fitting during the current pandemic. Furthermore, students need not stress over missing an important lecture.

4.4.3. Lower Costs

Conducting classes online helps students and lecturers reduce costs since they can stay wherever they are and do not need to go to a physical classroom.

4.4.4. Self-Discipline and Responsibility

Needless to say, online learning demands more self-discipline and responsibility from the students' and lecturers' part. This is because students

will invest energy all alone, without somebody physically supervising them to ensure that they meet deadlines. During online learning, student's attendance may be noticed due to their presence during an online video session, and so students need to hold responsibility for their learning.

On the other hand, contingent upon the educators' or students' technological capacities to visit websites and use computers, restrictions of online learning may vary. According to Fedynich (2014); and Wedenoja (2020), these limitations can be mainly seen in small children or students at the age of attending school who might lack online access, or who have had insufficient experience with online learning tools, like computers. Another limitation is that youth's online education and access calls for adult supervision, thereby necessitating the presence of adults as well as their contribution (Schroeder and Kelley, 2010; Youn, Leon, and Lee, 2012). Furthermore, online education might not provide adequate and suitable opportunities to young children, as opposed to adult learners, who require more involvement and interaction, as well as hands-on activities that help them focus and learn. Aside from the benefits of online education, there are disadvantages to be concerned with as well. Online learning involved six disadvantages (James, 2015; as cited in Salleh et al., 2020).

4.4.5. No Self-Discipline

Lecturers who conduct online learning, or electronic learning (e-Learning), may come across students' dedication to opt for online learning as they are not obliged to attend a physical classroom.

4.4.6. No Face-to-Face Interaction

On the one hand, online education is recently regarded as having an interactive feature, namely during the Movement Control Order in Malaysia; on the other hand, it is quite different from being present in an actual classroom. In other words, there is not a viable replacement for communicating with, and gaining from, an individual human.

4.4.7. Lack of Input From Lecturers

Online learning or e-Learning follows a structured format. A program is created depending on the course developers' or lecturers' beliefs of a curriculum being suitable during that time. Nonetheless, learning materials can immediately get obsolete and could contain mistakes from the earliest starting point.

4.4.8. Good Online Learning Is Difficult to Do

Creating a powerful online learning course requires time, money, and a lot of expertise. Multimedia, technical support, custom web development, and a strong User Interaction design are essential elements of a decent online learning plan.

4.4.9. No Facilities to Support Online Learning

Despite the absence of student facilities like labs and libraries, some online learning plan practical activities that can be done at home, virtual lab experiments, reading lists of accessible papers, or temporary subscriptions to journals.

4.4.10. Hard to Resolve Difficulties

Generally speaking, and specifically, during low participation in discussion forums, it tends to be difficult to find responses to questions or to overcome difficulties.

4.5. FACTORS INFLUENCING THE QUALITY OF ONLINE LEARNING

According to Meyer and Barefield (2020), administrative help is a central element in applying a state-of-the-art e-learning system in higher education. Strike (2018a) declared that they can be highly associated with the management and preparation of the online format to guarantee the quality of e-learning. Due to the indispensability of the application of technology in higher education online classes, a uniform supportive form with a synergistic atmosphere is strongly required in schools as well as universities (Barefield and Meyer, 2013; Bolden Jones, Davis, and Gentle, 2015).

As stated by Kebritchi, Lipschuetz, and Santiague (2017), the teachers' empowerment in creating, forming, and instilling various notions and strategies in the online class content development aids in attaining effective e-learning in advanced education. This in turn improves the standard of online learning in advanced education. As asserted by Alrefaie et al. (2020), since instructors are a crucial part of education, supervising their performance and gratification through peer assessment to ensure their proficiency, as well as surveying their gratification is significant for the improvement of the quality of e-learning. Taha et al. (2020) offered directions to create a working group that involves specialists from the curriculum, educational

plan, personnel advancement committee, and ongoing quality enhancement committee to form, supervise, execute, and evaluate the change to e-learning. Moreover, about ICT, Malik et al. (2018) declared that methods of appraisal and assessment constitute a large part of the educating-learning system. According to Oh, Chang, and Park (2019), a well-designed and intriguing online learning course format with visual data makes education through e-learning easier for students. Ricart et al. (2020) proclaimed that it should be developed suitable for students' competence and level of apprehension. According to Ahmad, Quadri, Qureshi, and Alam (2018), the e-learning method is preferred to the conventional face-to-face classroom learning concerning space, time, and self-learning.

In the e-learning approach, the course is planned with multimedia assets, which make students exhibit interest in learning and effectively comprehend the ideas (Khamparia and Pandey, 2017). Simultaneously, the course plan for customary learning can utilize minimum multimedia content because of time limitations. Moreover, a fitting course plan of e-learning upholds cooperation, and students engage in a fun ambiance during their learning (Liao et al., 2019). The nature of e-learning is profoundly affected by social help. As indicated by Anders-child and Grönlund (2009), family, friends, and teachers need to establish a good and supportive environment over the span of e-learning courses. Kemp and Grieve (2014) led studies on two different groups of psychology students' exercises during both traditional classes and e-learning ones. From one perspective, students partake in conversations during class all the more comfortable with their friends and educators in the class than online; then again, students are keener on completing written tasks like appraisals and activities online than in the classroom. Social correspondence with instructors and community association with peers is of most extreme significance for upgrading the quality of e-learning (Jung et al., 2002; Noesgaard and Ørngreen, 2015). E-learning can be successful through profound collaboration and continuous practice. Shih et al. (2018) have proposed another algorithm that can build an active group to reinforce correspondence and collaboration among peers.

4.6. MANAGING THE IMPACT OF THE COVID-19 ON SCHOOL EDUCATION

Contingent upon their available assets, various nations have embraced different measures to react to the pandemic. Technologically developed nations, in particular Italy, France, Germany, Australia, the UK, and the

US, have picked distance learning as a way to make up for any instructive loss. They have quickly improved their e-learning stages (Moodle, LMS, cloud frameworks, and so on) to create basic distance learning center portals and have given students admittance to e-content and depository through cell phones. As indicated by Azzi-Huck and Shmis (2020), all partners, organizations, instructors, publishers, and parents in these nations have coordinated to make digital assets (for example, course readings and learning materials) that can be conveyed in online classes (Azzi-Huck and Shmis, 2020).

Additionally, the two nations with the highest population, China, and India, have set up national e-learning gateways and have given parents, instructors, students, and education administrators admittance to the national depository of learning assets. For example, India has created thousands of complete courses in various languages. Likewise, China has assembled all common and national online platforms and telecom service organizations, redesigned the data transfer capacity of major digital platforms, and created society-wide assets, both human and material, to "ensure learning is undisrupted when classes are disrupted." Moreover, to encourage learning, it has embraced adaptable online instructing strategies. As proclaimed by Azzi-Huck and Shmis (2020), China has likewise reinforced online security through the cooperation of all service organizations and has given psych-social help to guarantee complete internet learning.

In South American nations, including Argentina, Chile, and Brazil, access to the internet and network is a significant issue; accordingly, the particular ministries have chosen to join new (mobile and/or digital) and customary technologies to give lessons and assets from a solitary, composed public teaching portal to students, educators, managers, and parents. As illustrated by IAU (2020), radio, TV, YouTube channels, recorded exercises, and on-request digital instructive assets are assembled to provide students with unstable internet access with lessons.

Likewise, Indonesia and Malaysia have coordinated all significant technology suppliers, internet services, and TV correspondence channels to cooperate with their ministries to provide students and educators with live instructive programs. For example, Education TV, 'Learning House' and the Online Learning System Program in Indonesia have provided instructive resources. They have cooperatively conveyed a LMS as well as digital lessons. Malaysia has additionally dispatched another TV channel that presents students, explicitly those without internet access, with schooling

through TV programs. As indicated by IAU (2020), these projects are likewise live-streamed on the Ministry's online educational platform, where one can have access to on-demand material and digital reading material.

4.7. PHYSICAL SCHOOL CLOSURE, REMOTE SCHOOLING AND LEARNING

Due to the ever-growing spread of COVID-19 towards the end of February, the World Bank mobilized a multi-dimensional task force team worldwide to help nations react and adopt necessary measures. During that time, only China and a few other affected nations were practicing social distancing and closing schools. According to Azzi-Huck and Shmis (2020), 120 countries closed schools 14 days later, thereby influencing almost a billion students worldwide. In response to the COVID-19 pandemic, numerous nations worldwide shut schools, universities, and colleges to stop the spread of the infection. At the beginning of April 2020, registering a peak in school shutdowns, around 1.6 billion students were affected across 194 nations, representing over 90% of all enrolled students (UNESCO, 2020). Regardless of being an advantageous alternative in contrast to no tutoring-which would have led to significant breaks in students' learning along with probable long-term ramifications for the affected cohorts (Burgess, 2020; Hanushek and Woessmann, 2020)-the abrupt change to utilizing computerized guidance may have prompted imperfect outcomes whenever contrasted with the common in-presence tutoring since instructors, learners, and schools all needed to suddenly adapt to a novel circumstance. This policy brief considers several challenges experienced by students, educators, and schools while adjusting to online learning to see how distance education can be improved further if it becomes obligatory to forestall universal transmission.

The main concern which has emerged is that online learning is solely accessible to children with access to a broadband connection at home that is sufficiently quick to ensure online learning. On the one hand, network operators have effectively maintained services and have proficiently used pre-existing capacity during lockdown periods (OECD, 2020). On the other hand, there are still geological regions and community groups that are underserved, particularly in provincial and far off zones and among low-income groups. Remote schooling has an important role in enabling students to proceed with their learning after the academic disorder procedure due to the schools and universities closing. As an example, Leung and Keing (2003) examined the way the Chinese University of Hong Kong answered

to SARS (severe acute respiratory syndrome) in 2003 concerning the recent institutions. Several professors could provide teaching online although classes being stopped. Most professors earlier know online teaching platforms before the SARS crisis, but this situation stimulated them to recognize using more complicated tasks (such as taking online tests).

As focused by Baytiyeh (2018), digital technologies are essential for promoting the flow of education over brief after the quake school closing. She also emphasized the value of a trustworthy internet connection at home to help in teaching materials supply. It is discussed that parental participation is necessary for the success of online learning surroundings as well as teachers' serious support. Parents need to make sure that learners are aimed at the given homework. According to Herold (2017), digital education recommends significant benefits for self-reliant learners. Former students can individualize their learning. In great measure, they will get a chance to gain control during their learning, perceive what they want to learn, what they like, and what type of support they require. Also, online instructional bases allow these students to learn at their speed, and this provides them more adaptability in the daytime. Conversely, these benefits are less probably maintaining for dependent learners. Younger learners might not be systematic, enthusiastic, and have time control skills that help them employ distance education advantages. Besides, the readiness and positive attitude of teachers are important factors for the online learning platforms' achievement. Online teachers must make up for the lack of physical existence through arranging an authentic surrounding in which all learners feel relaxed and teachers can be simply reached.

4.8. LEARNERS' ATTITUDES TOWARDS ONLINE LEARNING

Behaviors or attitudes of students can vary depending on the use of the technology itself, but if viewed from the positive side, it can be stated that it can significantly improve student achievement. Moreover, students' final exam scores in the E-learning category are statistically higher than in the conventional category (Elfaki, 2019). Consequently, E-learning is significant as its learning activities and materials impact students' motivation levels and academic performance. Specifically, Na, Petsangsri, and Tasir (2020) asserted that these materials can grasp students' attention and identify with them, thereby increasing students' confidence and satisfaction with positive comments or rewards. Computer-mediated instruction (CMI) is regarded as

effective for learners' course work. Besides, Ullah (2017) proclaimed that when students' access to online learning is made simpler, an appropriate attitude from students will be created in response.

As declared by Robroo (2019), when considering the different aspects of E-learning, happiness in studying with technology stood at the peak, followed by the enabling of more self-study when it comes to E-learning. E-learning provides valuable opportunities for higher education in institutions (Heis) to many students who want to pursue education regardless of any special, economic, and social barriers. According to Zabadi (2016), educators are responsible for carrying out strategies that change the negative perspectives towards E-learning by presenting more E-learning courses in earlier study years and encourage students to actively use the internet in their education and interaction with instructors and colleagues.

Student's attitudes can be regarded as highly effective in the E-learning process where learners are profoundly motivated to self-study, self-organize, and self-discover their learning process (Ozkan and Koseler, 2009). Furthermore, students' attitudes are assessed by the characteristics of self-productivity, pleasant experiences, interaction with instructors and colleagues, and learning method. It is important to first perceive learner characteristics, including attitudes, confidence, enthusiasm, and trust (Passerini and Granger, 2000, p. 52). Notwithstanding, even if the online courses are well-planned, deep in content and materials, and the information framework is completely prepared, the E-learning will not succeed as long as the student's attitude is not proper.

4.9. PARENTS' ATTITUDES TOWARD ONLINE LEARNING

The viewpoints and perspectives of parents on early digital and online education appear to have been contrasting over the last 10 years. From one outlook, parents have begun holding the value of technological devices in high regard and have been inclined to feel at ease with youths utilizing them at home (Livingstone et al., 2015, Mikelic, Lesin, and Sagud, 2016; Sharkins et al., 2016). They likewise supported the proper use of digital devices in the early years (Isikoglu et al., 2019; Kumpulainen and Gillen, 2019).

In particular, parents even supported youngsters utilizing PCs and were of the notion that kids ought to accomplish valuable technical abilities and be instructed on the most proficient method to utilize PCs for upgrading

their scholarly developments and future, namely employment opportunities (Hatzigianni and Margetts, 2014). Notwithstanding, parents were stressed over the risky material on the web and the chance of limitlessly using the web. They were worried about the impact of digital use on youngsters' social and wellbeing improvement (Jiang and Monk, 2016; Lepinic and Samec, 2013; Plowman, McPake, and Stephen, 2012). Because of the speedy development of screen innovations (iPads, cell phones, etc.), parents have recently passed on their doubts regarding cell phones being advantageous or detrimental to their kids and how to use these screen innovations (Livingstone, Mascheroni, and Dreier, 2015; Radesky et al., 2016). For example, the EU Kids Online project (Livingstone, 2015) demonstrated that parents with advanced education and income had utilized a broad scope of techniques and strategies to put limitations on the utilization of technological devices and had attempted to empower offline activities for kids while confining digital ones at home. A few parents even set principles and limits on the amount and time of utilizing technological devices and did not recognize the significance of their part and association in encouraging youngsters' commitment to technology (Hatzigianni and Margartts, 2014; Plowman et al., 2012).

4.10. ONLINE TEACHING DURING COVID-19 SCHOOL CLOSURE

The precautionary measures against the spread of COVID-19 revealed by the government of Kosovo on the 11th of March, 2020, have affected the lives and learning of around 450,146 students and 30,528 instructors/ educators in the nation (ASK, 2019; ISK, 2018; MESTI, 2020c). A few days following the declaration, the ministry of education, science, technology, and innovation (MESTI), in cooperation with different establishments, in particular municipal schooling directorates and non-governmental organizations, started arranging online learning for language and mathematics for children of specific age groups. After weeks, distance education in public pre-university education started being applied by broadcasting on national television videos of exercises instructed by chosen instructors on the subject math and the Albanian language for children from grades 1 to 5. Students had no other alternatives. Nonetheless, according to MESTI (2020), delegates of a similar association frequently notified the recipients of the educational framework that, in the impending weeks, the instruction would be arranged in a similar configuration for children attending grades 6 to 9 and afterward

for higher classes, vocational, and high schools too. Moreover, the duties and responsibilities for the learning implementation, where the job of each committed party is specified in the pre-college instructive institution across the nation, are reported for later on arranging of MESTI about remoted education (MESTI, 2020b).

4.11. RESULTS OF SHUTTING DOWN SCHOOLS DURING THE COVID-19

The consequences of closing academic institutes have influenced all of the community experiencing this situation resulting from the universal condition, particularly in the poorest countries.

UNESCO (2020) declared several factors that are critically influenced:

- **Learning Disturbance:** The closing of schools indicates the poverty of the entitlement to education and their personal advancement, thus when receiving an education is limited, the damage owing to the closing of educational centers is greater.
- **Food:** A vast range of kids and youths simply eat the food they are given in schools without charge or at the lowest price.
- **Weak Instruction of Parents for Distance Learning:** Such a situation is due to the parent's low academic level; therefore, the poorest households are damaged to a considerable degree.
- **Dissimilar Use of Data and Association Innovations:** The shortage of assets lately enhances the technological distribution that creates a hard barrier to achieving learning from digital platforms.
- **Childcare Deficiency:** Parents have to leave the house to find family maintenance, the children are alone in the houses, so several very negative results grow.
- **Economic Results and Further Unemployment:** Parents with small kids should remain at home to look after them; thus, prompting a waste of salaries and harming the area of productivity.

The former condition is greater intensified as it crosses health staff who must leave their job, which is very essential in a widespread position.

After extended school closing, the possibility of giving up to students who do not come back after the closed order is fully enhanced. According to UNESCO (2020), besides all these factors, the epidemic has displayed

several outcomes that must be considered at the educational control level. A current declaration (Hodges et al., 2020) emphasized a few issues encountering the instructive approach. Due to the epidemic, a quick change to online instructing techniques has been prompted without time to perform valid planning and an adjustment of the syllabus plan to make it suited for the online strategy entailing "remote teaching of emergency." In this regard, specialists have emphasized that educators and managers should think about scholars' inability to attend online classes easily, thereby resulting in an untimely delivery of assignments. Consequently, deadlines for tasks inside classes and course and institutional arrangements should become flexible. This can be reflected in the activity plan completed by the United States Department of Education, where prerequisites and approaches against COVID-19, like content adjustment, adaptability in assessment rules, or the adoption of methodological components in online education, have been facilitated (Means et al., 2012). In times of crisis, similar to the one at hand, it is crucial to completely consider the assessment and advancement cycles of students and to bear in mind the collateral effects that could be brought about by an exceptional expansion in the number of scholars who need to retake classes.

4.12. TEACHERS' CHALLENGES FOR ONLINE CLASSROOMS DURING CORONAVIRUS

Due to the special circumstances created by the COVID-19 pandemic, schools have shut in 185 nations and authority officials dictated students' tele training and the school personnel's' training to utilize different technological devices for applying the various segments of the curriculum to the new conditions molded by the pandemic.

4.12.1. Training Needs of Teachers for Online Classrooms During Coronavirus (Instructional Strategies Used in Online Learning)

According to examinations of online teaching carried out at Pekin University, Bao (2020) categorized six educational techniques for enhancing scholars' focus and commitment to education, thereby achieving an easy transition to online education.

- **Making Emergency Preparedness Plans for Unexpected Problems:** As all courses have been turned into the online

education format, computer servers might not be capable of hosting such a large magnitude of new users; thus, the online teaching platform may frequently experience shutdowns due to overload. To solve all types of unanticipated problems on time, faculties are required to have a Plan B or C prepared prior to the beginning of classes and to inform students beforehand.

- **Creating Crises Preparedness Plans for Unprecedented Issues:** Since the entire courses have been transformed into the online training design, computer servers might not be equipped for facilitating a particularly great amount of new users; thus, the online teaching format might frequently experience shutdowns due to overload.
- **Turning the Instructive Material into Smaller Units to Make it Easier for Students to Focus:** Numerous students experienced feeble steadiness in online education, thereby restricting the usefulness of learning (Li, Wu, Yao, and Zhu, 2013). In order to ensure scholars' concentration during online learning, the staff should logically divide the contents of the in-class instruction into different themes and apply a particular educating procedure. Therefore, to ensure a clear educational format in the curriculum, the faculty should break down the educational material into various little modules, each being around 20–25 minutes long.
- **Emphasizing the Utilization of "Voice" in Instructing:** In conventional in-class educating, significant teaching tools incorporate non-verbal communication (body language), facial expressions, and educators' voices. Once a course is taught online, facial expressions and body language are limited since it is difficult to convey them through screens, and solely "voice" might be completely applied. In this manner, during online instructing, the staff ought to give their lecture slowly to guarantee that scholars have captured the central points.
- **Working with Teaching Partners and Attaining from Them Online Support:** The specialized necessities of online schooling surpass those of traditional in-class lessons with regard to inexperienced faculty members. As a large portion of the staff at our college are untrained or not encouraged enough to work on online teaching platforms, it is exceptionally significant for teaching assistants to offer their help. In addition, the staff should completely cooperate with the instructing assistants prior to

lessons to ensure that the goals, instructive system, and teaching exercises of each class are understood. By doing so, instructing assistants can offer their powerful help in online schooling. Besides, they can do carry out consultations and answer requests made by academically undertrained scholars through email, WeChat, and various social means outside of the class.

- **Enhancing Scholars' Active Learning Capacity Outside of Class:** As opposed to regular in-class teachings, the faculty possesses less control in online education, and there is a more prominent possibility of students skipping classes. Hence, online education's development and its success are highly based on scholars' significant degree of active learning after the class. Accordingly, the faculty should apply various procedures to respectably adjust scholars' schoolwork and reading tasks to support their active learning after class.
- **Effectively Integrating Online Education and Offline Self-Studying:** Inadequate preparation prior to lessons, taking part limitedly in conversations during class, and insufficient depth of conversations are common occurrences in conventional in-person teachings, and they ought to be tended to in online educating as well. To address these issues in online instructing, the staff needs to think about two periods of educating: the offline and online instructing stage. In the offline self-studying stage, scholars should look through the course-oriented material and hand in short writings on their studying of significant contents prior to class. Furthermore, the staff must not only offer criticism on scholars' assignments but also be informed of students' learning cognitive levels. In doing so, the faculty can change the teaching contents prior to lessons. During the online educating stage, the staff should have a conversation segment for scholars to interact and share their comprehension of what they have read. Therefore, scholars will not end up with obscure, interrupted, and superficial knowledge.

4.13. CONCLUSION

Struggling with the COVID-19 pandemic in these new circumstances, education, even language learning, has now transitioned into online learning. It is obvious that instructional technology, as a research field with

numerous sub-categories, has played a vital role in buffering the effects of the pandemic on instructional activities by being the sole platform for education, delivery, and evaluation. Online learning is profoundly embedded in proper planning and formats of education with numerous existing theories and models; however, the transitioning process is controversial due to the absence of adequate planning, structure, and development of online educational programs as a result of the pandemic. By making use of different technologies that are available for online learning, instructors can offer a more collaborative distance education experience by providing live synchronous video conferencing. Moreover, online education is regarded as a future learning process and has a capacity for comprehensive change in the pedagogy of teaching and learning in the contemporary world. Nevertheless, crucial steps need to be taken to prepare all participants of education in the online learning platform. Government and educational institutions must apply a policy that would offer free internet and digital devices to all learners for the sake of encouraging online learning where people can participate during lockdowns and remain secure from the pandemic. Online learning is the most desirable method of learning during this time of lockdown caused by the outbreak of COVID-19. Moreover, online education is viewed as a future learning process and has a limit with regards to extensive alterations in the pedagogy of educating and learning in the contemporary world.

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Chapter 5

Critical Look at Computer-Assisted Language Learning

CONTENTS

5.1. INTRODUCTION

This chapter begins with an attempt to provide an overview of how the term computer-assisted language learning (CALL) has appeared in the literature and how it has been defined accordingly. Moreover, a history of CALL is presented with an emphasis on how it has evolved during the last decades. In the following section, theoretical perspectives on CALL are elaborated, in particular with regard to Warschauer's (1996, 2000) classification of CALL. This general view toward CALL is further specified with a closer look at the roles of the learners and teachers in the ever-changing and progressive area of CALL.

5.2. CALL IN THE LITERATURE

As Beatty (2003) maintains, CALL is closely related to "many other disciplines *and* the computer" (emphasis in original, p. 248). For instance, on the one hand, CALL has become increasingly integrated into research and practice of general skills such as grammar, reading, writing, speaking, and listening, and on the other hand, it has entered the realm of other discrete fields such as autonomy, corpus linguistics, and testing. Even regarding the realm of computer, itself, Chapelle (2001) places CALL within six computer-related sub-disciplines: educational technology, computer-supported collaborative learning (CSCL), artificial intelligence (AI), computational linguistics, corpus linguistics, and computer-assisted assessment. Beatty (2003, p. 248) believes that the difficulty of defining CALL is obvious in this selection of related terms and acronyms:

- Computer-aided instruction (CAI);
- Computer-assisted learning (CAL);
- Computer-assisted language instruction (CALI);
- Computer-assisted language teaching (or testing) (CALT);
- Computer-adaptive teaching (or testing) (CAT);
- Computer-based training (CBT);
- Computer-mediated communication (CMC);
- Computer-mediated instruction (CMI);
- Intelligent computer-assisted language learning (ICALL).

Some of these terms may be considered as being synonymous with CALL, while others focus on narrower or broader concerns. However, the list is not limited to these terms. Gruba (2004) refers to some more acronyms

including TELL (technology-enhanced language learning), web-enhanced language learning (WELL), networked-based language teaching (NBLT) (Kern and Warschaer, 2000), project-oriented CALL (PrOCALL), computer applications in second language acquisition (CASLA), and computer-assisted second language acquisition research (CASLR) each serving a different purpose and proposed by different scholars. Yet, Gruba (2004) believes that CALL is now widely regarded as the central acronym to refer to studies concerned with L2 and computer technology.

Given the breadth of what is going on in CALL, Beatty (2003) defines CALL in general as "any process in which a learner uses a computer and, as a result, improves his or her language" (p. 248). However, due to the evolving nature of computer technology, we must expect more changes and directions in the use of this gadget in the process of language learning.

Murray (2007) also refers to the same fact stating that: "The use of computers in language education and in English language education in particular remains an emerging field of study, largely because technological advances introduce new instructional possibilities. The past two decades has seen computer-assisted approaches move from a cluster of learners grouped around one machine, trying to solve a text-only puzzle such as *Storyboard* or going through a text-only drilling exercise, to communication between learners via computers to networked multimedia programs where students can hear authentic language, record their own, and receive feedback on their language use (Italics in original, p. 748)."

5.3. HISTORY OF CALL

According to Hanson-Smith (2001), "much of the early history of computers in language learning, in the 1980s and 1990s, was concerned with keeping abreast of technological change" (p. 197). Gruba (2004) refers to an early project carried out at Stanford University, in which instructors created self-instructional materials for Slavic language learning and delivered them via a mainframe computer. Another group at the University of Illinois developed a system named programmed logic for automated teaching operations (PLATO), in which teachers were able to write a Russian-English translation course (Gruba, 2004). As Hanson-Smith (2001) maintains, in this computer program students mastered each individual topic_ which included presentation and practice in the form of tests_ in solitary confinement in a language laboratory. Although high costs disallowed the widespread use of PLATO, mainframe computer applications throughout the 1960s and 1970s

were developed to the point of interactive features to help students read specialist scientific texts. With the arrival of the 'microcomputer boom' in the late 1970s, however, expensive mainframe computer usage came to an end. Developers and instructors alike began to shift their attention to personal computers (PCs) (Gruba, 2004). And as Hanson-Smith (2001) asserts, "the continual miniaturization of electronics" has provided us with increasingly smaller, faster, and more powerful computers, and currently "multimedia has become virtually synonymous with computer" (p. 107).

Parallel to constant advancements in computer technology, issues in CALL have "evolved from an early emphasis on how to use the new technology to research on technology's effects on learning" (Hasnon-Smith, 2001). Cappelle (2001), for instance, evaluates five possible CALL activities, in terms of language learning potential, learner fit, meaning focus, authenticity, impact, and practicality. Likewise, in a more recent work Chappelle (2003) discusses the particular features in electronic learning materials and tasks that appear to be justified by theory and research and illustrates how these features would be implemented in learning materials, thereby presenting some initial components of pedagogy for CALL.

5.4. THEORETICAL PERSPECTIVES IN CALL

As Gruba (2004) maintains, trends in CALL roughly parallel those in other areas of applied linguistics. In this regard and in an attempt to provide a clearer view of the history of CALL, Warschauer (1996); and Warschauer and Healey (1998) identified three phases in the history of CALL: Behavioristic CALL, Communicative CALL, and Integrative CALL. Later, Warschauer (2000) made some alternations in his categorization and summarized the key aspects of CALL over 30 years in Table 5.1.

Table 5.1. Warschauer's Three Stages of CALL

Stage	**1970s–1980s: Structural CALL**	**1980s–1990s: Communicative CALL**	**21st Century Integrative CALL**
Technology	Mainframe	PCs	Multimedia and internet
English-teaching paradigm	Grammar-translation and audio-lingual	Commucate[sic] language teaching	Content-based, ESP/EAP
View of language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
Principal use of computers	Drill and practice	Communicative exercises	Authentic discourse
Principal objective	Accuracy	And fluency	And agency

Source: Warschauer (2000).

5.4.1. Structural (Behavioristic) CALL

The first phase of CALL, implemented in the 1970s and 1980s, was based on the then-dominant behaviorist theories of learning. Programs of this phase entailed repetitive language drills and can be referred to as "drill and practice" (or, more pejoratively, as "drill and kill") (Warschauer and Healey, 1998, p. 57). In this paradigm, which was particularly popular in the United States, the computer was viewed as a tutor "that never grew tired or judgmental and allowed students to work at an individual pace" (p. 58). Warschauer (1996, p. 4) believes that the rationale behind drill and practice was not totally spurious, which explains in part the fact that CALL drills are still used today. Briefly put, that rationale is introduced as follows:

- Repeated exposure to the same material is beneficial or even essential to learning;
- A computer is ideal for carrying out repeated drills, since the machine does not get bored with presenting the same material and since it can provide immediate non-judgmental feedback;
- A computer can present such material on an individualized basis, allowing students to proceed at their own pace and freeing up class time for other activities.

Based on these notions, a number of CALL tutoring systems were developed for the mainframe computers, the most important of which is that of PLATO, which was already discussed in this chapter.

5.4.2. Communicative CALL

The next stage, communicative CALL which emerged in the 1980s and was also popular during the 1990s, paralleled the advent of communicative approach to teaching which gained prominence when the behavioristic approaches to language teaching were being rejected both at the theoretical and pedagogical level, and when new PCs were creating more opportunities for individual work. According to Warschauer (1996), one of the main advocates of this approach was Underwood (1984, p. 52), who proposed a series of "Premises for 'Communicative' CALL." According to Underwood (cited in Warschauer, 1996), communicative CALL:

- Focuses more on using forms rather than on the forms themselves;
- Teaches grammar implicitly rather than explicitly;
- Allows and encourages students to generate original utterances rather than just manipulate prefabricated language;
- Does not judge and evaluate everything the students nor reward them with congratulatory messages, lights, or bells;
- Avoids telling students they are wrong and is flexible to a variety of student responses;
- Uses the target language exclusively and creates an environment in which using the target language feels natural, both on and off the screen;
- Will never try to do anything that a book can do just as well.

Communicative CALL was in line with the cognitive theories which emphasized the fact that learning is a process of discovery, expression, and development. Popular CALL software developed in this period included text reconstruction programs and stimulations (Warschauer and Healey, 1998). In the former type of program, students worked alone or in groups to rearrange words and texts to discover patterns of language and meaning, while the latter software stimulated discussion and discovery among students working in pairs or groups. As Warschauer and Healey (1998) assert, the focus in communicative CALL was not so much on what students did with the machine, but rather what they did with each other while working at the computer. However, in spite of all the advantages of communicative CALL

over structural CALL, it too began to come under criticism. For instance, critics pointed out that "the computer was still being used in an *ad hoc* and disconnected fashion and thus made a greater contribution to marginal rather than central elements of the language learning process" (Kenning and Kenning, 1990; cited in Warschauer and Healey, 1998, p. 58). These criticisms paved the way for the emergence of the next stage in CALL, i.e., integrative CALL.

5.4.3. Integrative CALL

Along with the reassessment of communicative language teaching (CLT) theory and practice, many teachers moved away from a cognitive view of language to a more social and socio-cognitive view, which placed greater emphasis on language use in authentic social contexts. This fact reflected itself in the development of task-based, project-based, and content-based approaches and the same trend led to a new perspective on technology and language learning, termed integrative CALL (Warschauer, 1996). In this approach to CALL which seeks to both integrate various skills and at the same time integrate technology more fully into the language learning process; students learn to use a variety of technological tools (including multimedia and the Internet) "as an ongoing process of language learning and use, rather than visiting the computer lab on a once-a-week basis for isolated exercises" (Warschauer and Healey, 1998, pp. 58, 59). Moreover, in integrative CALL, attempts are made to make full use of networked computers as a means to involve learners in meaningful, large-scale collaborative activities (Warschauer, 1997).

Warschauer (2005) refers to the relevance of Vygotsky's SCT (Lantolf, 2000), and its major concerns to CALL. Although it is not directly mentioned in Warschauer's discussions of integrative CALL, it seems that these concerns are more applicable to the premises of this phase of CALL. According to Warschauer (2005), computer technology, as a tool, mediates, and transforms human activity and this mediation, in turn contributes to, broader social, cultural, historical, and economic trends. Moreover, Hanson-Smith (2001) refers to the traces of constructivism in the use of computers in language learning.

She points out that: "constructivism involves the use of problem-solving during tasks and projects, rather than or in addition to direct instruction by the teacher. In CALL, this theory implies learning by using computer tools to explore simulated worlds, to build presentations and websites that reflect

on personally engaging and significant topics, and to undertake authentic communication with other learners around the world (pp. 107, 108)."

Although Bax (2003) criticizes Warschauer's analysis of the three stages of CALL and proposes an alternative to this analysis, Warschauer's (2000) model still serves as a viable reference for reviewing the history of CALL and the changes and developments in this area of research and practice has gone through. Moreover, as Warschauer (2000) discusses by this analysis, he does not want to suggest that these stages have occurred sequentially, with one following the other, from 'bad CALL' to 'good CALL.' At any one time, any of these may be combined for different purposes, "however, there has been a general trend or development over the years, with new ideas and uses of computers being introduced in combination with those previous" (p. 65).

5.5. COMPUTER-ASSISTED LANGUAGE LEARNING (CALL)

It appears we are continually fighting with machinery in today's classroom environment. On the one side, the way instructors teach and learners learn has been revolutionized by technology. It may develop a nuisance that receipts away from the experience of education. The manner learners' study, equally in the typical class and in the language, has been fully modernized by computer-assisted learning (or CAL). Computer, internet-aided education can create classes even extra communicating and stimulating, and even the most hesitant of pupils can pique interest.

Computer Assisted Learning requires many different tools and concepts, but it is easy to grasp them sufficient. The Intense School, that emphasizes on digital PC and internet material, describes it purely as "the use of electronic devices/computers for teaching and learning." Computer Assisted Learning also contains distance learning, homeschooling, internet classes and additional classes resources consumed in universities. Mainly, any form of equipment that will most certainly be accustomed to acquire comes under the CALL umbrella.

Technology can be incredibly useful English language teaching device. They easily process information and incorporate voice, music, videos, photographs, and text into lessons. For each individual learner, they can be configured to customize instruction and testing. They can also use their "untiring, without judgmental nature" to construct learners feel further

relaxed and eager to challenge (Butler-Pascoe 1997, p. 20). Since there can be several possible advantages to be obtained from these "machines," the problem now is not if technology can be used for language teaching, but how.

Technology and computer resources are currently being used for English language teaching and will carry on to be consumed by certain individuals or organizations using computers for language instruction. It can be expended as an up-to-date language instruction and education approach in which the device is used as a presentation help, and as a support and evaluation of content that typically requires significant interactive materials to be learned. Introduction of the Internet or the World Wide Web and computer has broadened its reach over the years. It has become communicative, collaborative, and exploratory, so that it is easy to combine audio and video exercises or events. As years have gone by, the position of language teaching has increased. As Barker (1994) noted, learning interactivity develops "a necessary and fundamental mechanism for the acquisition of knowledge and the development of both cognitive and physical abilities" Nowadays, CALL technology will support promote the interactive method to learning since the relationship among the instructor and the learner and the learning essentials and sparkles of the students is also concerned.

Because of the major developments in education L2s (e.g., the character of the teacher, learner, software, and education process method is directed in the class situations), in the field of second language acquisition (SLA), communication has developed a progressively significant and applicable part of research because it represents what happens in the phases of education. Interaction is inherent to efficiency, good teaching exercise in addition to singular exploration. The usage of computer applications such as Windows Messenger, the Internet, E-mail, and extra particular and nonspecific internet software can be combined with successful pedagogics to build a strong language education plan. A definite point of autonomous and organized educating is provided through computer technology. Ultimately four abilities of speaking, listening, reading, writing, and even serious rational, it quickly assists and also inspires young L2 learners (Cobb and Stevens, 1996). Technology has the ability to play a significant role in English education. CALL has created incredible chances to enhance L2 learning, for instance, inspiring learners' interests or enhancing the literacy rates of learners' skills (AbuSeileek, 2007).

5.6. DEFINITION OF COMPUTER ASSISTED LANGUAGE LEARNING CALL

The evolving status of CALL is suggested by Kern (2006), contrasting Levy and Egberts' CALL concepts. Levy (1997) states that CALL implies the quest and analysis of computer apps or applications in language teaching and learning.

Egbert (2005) states that CALL implies learners learning language through technologies of computer. Two above meanings,' any situation' and 'information technology (IT)' instead of 'computer' are the notable changes. Egbert's concept will, possibly, seek to embrace a wide variety of situations of language learning consuming PC technology. Furthermore, the definition of the word 'machine' is not completely without ambiguity, then more detailed. The writer implies 'IT' since there have also been improvements in the concept of computer.

According to Nachoua (2012) Technology and TEFL have been developed such that "learning languages through technology has become a reality of life with significant implications for all applied linguists, especially those concerned with the acquisition of SLA." Several research findings found that learners educated foreign languages over CALL plans achieved superior consequences rather than those educated using conventional plans (Asoodeh, 1993; Kolich, 1985; Siribodhi, 1995). In addition, CALL offers personalized guidance for teachers that enable learners to operate at their particular speed. Davis (2002) therefore claimed that CALL is viewed as a language instruction and education method in which the technology is consumed as an assistance to the performance, strengthening, and evaluation of resource to be taught, typically having a significant communication aspect. Successful L2 language education is one that enables the student to use his language in accordance with his needs in his everyday life. According to Lee (2000), research and experience indicate that internet-grounded computer be able to lead to: experimental learning, inspiration, improved student efficiency, genuine study content, greater engagement, individualization, freedom from a sole material of knowledge, and universal comprehending.

5.7. CALL SOFTWARE

Warschauer and Healey (1998) suggest that one of the reasons why software is purchased by administrators is to have an incorporated teaching solving a bit which will:

- Include the language in a range of mass media with realistic, native-speaking models.
- Providing a program for language learning.
- Do an evaluation of needs.
- Decide the finest following move for the student and arrange for the skill field and practice.
- Report whatever the learner did, accompanied by an assessment.
- Be usable at different time and do not need any extra pay or benefits.

In terms of English language instruction, a variety of great-end sets have been planned to arise as near as probable to satisfying those desires. These contain DynEd's Dynamic English, CALI's Ellis, Berlitz's English Discoveries, Hartley's Project Star, Jostens' English Language Development and STEPS. ESL (2000) from HRB Systems integrates applications from several of these and supplementary suppliers into a complete framework that provides software for organization. What separates these from several additional interactive systems is that they contain a program, not just various exercise components. It is a matter for each institution to assess the consistency of the program and its consequence to the goal students, as separately of the sets is built with a very various class of students in thoughts. Others are completed for a North American English as a second language (ESL) listeners, for instance, the Jostens and Hartley products; others stand further based on Foreign Language English world, such as the CALI and DynEd offerings.

A variety of software programs provide a range of skills to learn, often without robust management frameworks or narrow set of courses. Best suppose the student to determine what abilities to focus on and what social media to utility, even with the help of an instructor. This can vary from minimal to extensive, quite costly to very reasonable. On the top of the language teaching of English are services such as the English Express and Story Club of Davidson and the ALA Lab System of the American Language Academy. In particular, Davidson products provide comprehensive teacher manuals to assist teachers in incorporating the program into their classrooms.

There are many advantages to incorporating a machine component to language instruction, including:

- With suggestions, multimodal practice;
- Individualization within a broad class;

- Project work in pairs and small groups, interactively;
- The feature for fun;
- The range of available tools and the types of learning used;
- Investigative learning using huge quantities of information on languages;
- Ability-constructing in real-life PC usage.

One of the excessive advantages of program development is that in the language classroom, software sellers (and language instructors) no more feeling committed to sentence structure repetition is the key objective of processer usage. Although the process has taken longer than English language teaching in the foreign language arena, the trend towards computer communicative teaching is obviously happen. A large number of syntax and words practice plans are accessible, but in any case, the words course have begun to be situated, and graphs, aural tapping and replay, and movie have been integrated. Exercises, mainly in the first steps of words development, have a position in language learning, where presenting the similar data in various forms, for instance, filmic, audio, and content, improves comprehension and remember. Additional advanced slip-examination will afford learners with actual assistance in getting comment, guiding them to more repetition or taking them to the following step. Tiny, oriented programs can be used by those who want more assistance with the facets of linguistic that develop by exercise to allow them more period and support out of normal classroom period time. In particular, pronunciation, and phonation practice has promoted by software. In order to make learners have comparison their recorded voices with an ideal, best pronunciation agenda now include several forms of voice recording and replays. Many of the English pronunciation systems contain audiovisual slides and animatronics of the mouth and lips creating unique sounds, for example, American Pronunciation Software, Ellis Master Accent and American Speech Sounds.

Several vocabulary services, such as The Learning Firm's Vocabulary Builder, Practice Makes Perfect, Hear It, See It, Say It! and Using speech recognition technology assist learners realize in what way similar in many languages they have arisen to the target accent. Some software package, for instance, Speech Viewer allow learners attempt to overlap a teacher-recorded model with the graphical representations of their dialog. In combination with aural signals, these visual cues function to provide sophisticated feedback.

A similar method of analyzing use is to identify collocations and connections for terms—the vocabulary best probable to appear in

combination with or very nearly an intention phrase, often using a broad textbase. For instance, typical associations of the vocabulary "charge" could be "in" (in charge) and "take" (take charge), in addition to "of" (charge of) and "with" (charge with). Learners may as well understand that an option was "office chair" however not "chair office." Collocation and associations were discovered by Adam and Eve from Oxford University Press to assist instructors construct various forms of text-based activities.

5.8. RECENT TRENDS IN CALL RESEARCH

According to Hubbard (2020) making language teaching or learning "better" is the essential reason for doing CALL. But then what is the meaning of that? There are several means that CALL will affect the process of learning goals of CALL:

- Learners develop language skills or abilities more easily or by fewer energy (learning efficacy);
- students collect intended language information or abilities and preserve them for more time, or acquire additional of whatever they want (efficacy);
- Students may acquire resources or experiences that would then be problematic or difficult to encounter (available);
- Students can acquire through a broader kind of epochs/locations with more or less equal quality (convenience);
- Learners like or are able to participate more in the language learning process (enthusiasm);
- Students need littler environment, little period of time for teachers or little costly resources and books (official proficiency).

Hubbard (2020) declares that these have been CALL's aims since the beginning (along with enhancing the life of the teacher). In recent years, however, it has become apparent that alternative justification for incorporating machinery into language education is that learners will become language users when the teaching is completed, and computer is as well possibly to be the facilitator of their language usage. Education with internet is also an instance of validity, not only an extra to the class.

According to Hubbard (2020) CALL comes in many variabilities. Here is a flavor of the kind of subjects enclosed in current educational papers and further educated outlets seeking to develop our comprehending of how foreign language acquiring and usage is mediated by technology:

- **Computer-Generated Connections:** Similar to the "pen pals" of the previous, these include online connection classes of language learners and usually work on combined ventures consuming the languages they study in their classrooms.
- **Numerical Literateness:** For both language learners and native speakers, this is a growing field, learning to become both vital users and professional language and beliefs providers.
- **Game-Constructed Language Studying:** Language studying can be strengthened by the inspiration and dedication prepared by interactive game situations or by acquiring exercises and activities to "gamifying."
- **Cell Phone-Aimed Language Studying:** Going further than the idea of learning "anytime, anywhere" the versatility may be in the student, the computer, and the assignment.

5.9. TEACHERS AND CALL

As Hubbard (2020) mentions, in a variation of various methods, instructors interested in utilizing internet will participate, that can be realized as various instructor characters:

- As investigators: What works for CALL in SLA, human-computer interaction.
- As CALL customers for classroom usage or for assignment or additional external learner operations.
- As managers, assisting learners discover and spend additional resources or online tools for CALL.
- As PC-facilitated interaction managers amongst students in and outside of classroom.
- As internet or website improver, also "from scratch" and to incorporate novel resources to current models.
- As teachers to support learners create apps, webs, and processor or PC knowledge in general.
- As Computer Assisted Language Learning specialists for your plan, assisting more educators and managers through computer applications.
- As Computer Assisted Language Learning experts, going to consult on exterior plans, making computer applications

assessments for magazines, presenting conferences, writing articles, translating, and requesting computer analysis, and given that guidance to the sector in general.

In a report, Kasemsap (2019) describes the TELL overview; CALL overview; the association between CMC or computer-mediated communication and language learning; MALL overview; and also, the digital age of technical use for language learning. CALL and MALL cope dramatically with the effect of technology on second or foreign language instruction and education. CALL and MALL are the usage of complex machineries as technical advancement to view multimedia as new methods of language studying within the numeral era. CALL, MALL, and TELL, boost studying stimulus efficiently and improve superior outlooks towards language learning in learners and linguistic students. The findings revealed that the promotion of Say, Computer Assisted Language Learning, and Mobile Assisted Language applications have the possibility to increase the efficiency of language education and achieve planned objectives in new language education surroundings.

Mozakka and Khoshsima (2017) seek to explore the effect of CALL on the development of listening skills as a method to instruction and education a foreign language. In this experimental study, in the form of two intact classes at an English language institute, 30 upper-intermediate EFL learners were chosen. Two intact classroom were accidentally allocated to the investigational and controller groups and then, in order to make sure their homogeneity in listening understanding, an FCE listening pre-test was given to them. Afterward, for 16 sessions (two months) of various methods, two classes were instructed. In the experimental group, CALL was presented, while in the control group, the standard approach to linguistic teaching was practiced. At the end of the experiment, a post-test listening test was given to both classes. In post-test listening, the experimental group outperformed the control group. The findings showed that the application of CALL had an important impact on developing the listening skills of learners.

Eslit (2017) notes that CALL is one of the many instruments and approaches that can help develop the language skills of learners. This modern language education technology has improved the autonomy of learners, creativity, efficiency, and teamwork. Interactive Teaching Method and CALL have been used by language exercises or skills practice to mentor language learners; as a stimulation for conversation and interaction; or as a writing and analysis tool. Eslit (2017) strengthens an existing Comparts Syllabus applying CALL supplies offered by the usage of a Personal Website. Among

the purposeful samples, it is limited to 35 Comarts STI-Iligan students. It is intended, as it is, to contribute to the field of ESL teaching and facilitate interactive and communicative grammar learning in English. The results of the study showed that the new STI-Iligan Comarts syllabus has to be updated. Students considered the CALL lessons to be more communicative and engaging. The fields amended include reading, writing, speaking, and the communicative use of language in the language system (grammar lessons/drills). The overall results reflect the general satisfaction of the users of the updated syllabus of Comarts.

5.10. E-LEARNING

Lumpur (2020) claims that the conference on GLoCALL or globalization and localization in computer-assisted language learning targets to exchange information, study, and knowledge on in what way to make language learning more productive and enjoyable by using computer technology; to discover how machinery may be adjusted to superior address the native requests of learners and instructors, though at the similar time allowing CALL with global perspectives; and to make the internet accessible to native instructors who want to improve their CALL effectiveness.

Lumpur (2020) suggests and promotes in the sub-themes for globalization and localization below, but are not limited to them:

- Technology application to the language classroom;
- Localization of Internet content to the classroom;
- Operating the Internet for cultural interchange;
- Organizing multimedia/hypermedia situations;
- E-learning, cooperative learning, and combined learning;
- Developing technologies;
- Promoting autonomous learning over technology;
- Exercising language teachers in e-learning surroundings.

Maximova (2017) gives a broad overview of the teaching and learning of foreign languages via multimedia and computer technology. This practice has endured major changes in its growth path in terms of approaches, methods, and content of implementation. It has gone through many phases dictated by the level of computerization, the growth of communication technology and the advent of new software products. In addition, this policy allowed the creation of a large number of types and kinds of tasks. Along

with the growth of computer technology, the range of these exercises and their functional capabilities is growing. At the present point, practitioners employ with the aid of multimedia and computer technology in the field of teaching foreign languages are facing a range of tasks. They were produced as a result of a study commissioned by the European Union's education unit and articulated in a series of documents released at the beginning of the 2000s. Consequently, task forces have been set up to establish guidelines and training initiatives at various regional levels and at different teaching stages. The establishment of related internet sites has allowed specialists to become aware of the ongoing processes of innovation. Domestic specialists should research and welcome this knowledge.

5.11. HOW CAN COMPUTER ASSISTED LEARNING HELP STUDENTS WITH LANGUAGES?

Though the use of CAL in any class can be useful, it is particularly helpful in classrooms for language learning. It is very successful, that it catches its particular abbreviation as well! CALL is increasingly developing as one of the popular education methods between far-off linguistic teachers. Utilizing Computer Assisted Language Learning language instructors will assist the learners acquire better words and syntax by making them observe and see movies, perform computer competitions, or maybe browse the computer utilizing just the aim language. So, it encourages learners to make more constructive usage of the purpose language, which enables them to acquire that further effectively rather than only routine repetition. The language's vocabulary and guidelines are rather further beneficial toward them, because students can recall the vocabulary easier. Now there are only some instances of in what way to use CALL to assist learners study languages.

5.11.1. Visual Learning

Many students are filmic students and significantly profit by having a picture or an instance of the words debated in the classroom. With this, computers are a huge aid, since instructors possess the complete technology at their own reach. Teachers are simply able to explore the internet for images of fruitage, wildlife, or paints, in order to assist the learners, understand whatever they are explaining to correlate with the term. To aid to demonstrate an argument, teachers are able to consume movies from different sources and software or their individual plans. It makes it much more real for the learner to see

something actually happening or really being used in a video, therefore they remember it for longer.

5.11.2. Listening Practice

A critical part of learning every language is listening practice. By encouraging teachers to play song or make a recording dialog, CAL assists with this, so that the learners are able to pay attention to the words applied obviously and in actual circumstances. Speakers or singers may then be emulated, and they can discover the individual speech in their innovative language.

5.11.3. Tests

PCs remain perfect means to perform tests for learners. Teachers are able to whichever make their personal exam and allow students to sit down on the PCs and laptops in the classroom to take exam, otherwise on the internet, teachers may discover pre-printed exams or additional test resources and include them in the classes. Compelling computer exams may support learners experience little hurried and let them think as they possess further confidentiality than if they stayed in a large class.

5.11.4. Games

Playing competitions are maybe some of the greatest habits to consume computer in the class. Linguistic learners (particularly adolescence) enjoy performing video competitions in the aim language or doing puzzles. Playing games does not seem to them similar studying, it seems to enjoy entertaining. When students attempt to reach to the following step or solve a hard puzzle, the students will not even know they are getting smarter, while in fact they are learning and remembering more than they would be without!

5.11.5. Internet Searches

In the classroom, another interesting way to use the target language of a student is to make them search in the internet in the target language. Tasks such as Web Quest start through the instructor providing learners a search engine question to search. The students then have to use only their target language to figure out the answer, that may be a tangible, enjoyable, and contest!

5.11.6. Online Courses

Latest nonetheless surely not smallest, computer may consist of virtual classes. Such classes may be held at home on their individual period, likely equally fragment of a complete load of university courses, or the classes may be held equally as a complement to a language classes student currently take in individual. You can find countless of permitted or charged language virtual classes, and several of them may stand highly operational.

5.11.7. The Internet

Recently, the advent of CMC and the computer restructured the use of PCs for language studying. By the rise of the technology, the computers have been changed from a device for dispensation and viewing information to a device for dispensation and communicating information, both in society and in the classroom. Language students are now able to connect cheaply and rapidly with additional students or talkers of the aim language all-round the biosphere for the first period. This communication and contact may stand synchronous "real-time" interaction means altogether consumers stay online in and talk at the very equivalent period of time, or asynchronous that means with a postponed communication organization for instance electrical mailing.

Investigation proceeding the usage of CALL argument for language instruction has effected on the queries of involvement, language usage, and inscription development. Several investigations showed that computer-aided debate requires membership that is significantly added inclusive rather than direct argument, through future little dominance by moreover the instructor or outspoken learners in particular (Kelm, 1992; Chun, 1994; Kern, 1995; Warschauer, 1996a; Sullivan and Pratt, 1996). This may be possibly because of the element that without having to seize the stage, everybody can "speak" at once.

Asynchronous correspondence is most commonly carried out by electronic mail; other instruments comprise official statement boarding, crowds in "USENET" and conference according to web schemes. Electronic mail is best straightforward in that emails move to singular boxes of students directly. The other method that needs learners to register in to websites to study e-mails absence electronic mail accessibility; so, they permit e-mails to be negotiated, making it easier for many people to access specific sections of lengthy, complicated discussions. In L2 schools, electronic mail and added modes of asynchronous CMC have been consumed intended for a

number of reasons. During their courses, several instructors in university and academia writing and inscription courses have employed email conversation individuals to provide learners with resources aimed at dependable written tasks (Warschauer, 1995). Long-distance email exchanges have been used by instructors in all ranks, starting from prime to advanced, to offer learners better chances for dependable contact (including natural speakers and other language students) and for communication ventures, for example, movie, and texts comparisons (Soh and Soon, 1991), folk tale's compilations (Gaer, 1995), company reproductions (Feldman, 1995).

5.12. LEARNING THROUGH GAMIFICATION

Gafni, Achituv, and Rachmani (2017) used the Deterding's et al. (2011) concept of gamification as the usage of game plan fundamentals in non-game situations. The operation is wrapped in an enjoyable sense to enable users to perform repetitive yet substantial tasks. Alemi (2010) found that as part of L2 learning, vocabulary competitions (gamification) hold a progressive impact on words growth. These results have been reinforced by Varmaghani, Meihami, and Meihami (2013), debating that Computer Assisted Language Learning and, in particular, imitation competitions carry out a major impact on improved learning of English words and accent. The results stood centered on an experimentation through in which two groups remained separated into sailors and mariners. The investigational group participants studied words and phonation and accent throughout simulant competitions, although the control crowd educated the similar content through the instructor in a conventional way. After 45 days of learning, both groups took a test, and the findings revealed that individuals who employed imitation games retained substantially greater points of achievement in words and phonation. Comparable Aghlara and Tamjid (2011) carried out a study in Iran. The outcomes of an investigational group and a controller group of 20 children, aged between 6 and 7, were evaluated following a 45-day learning dated. The experimental group, using a PC competition for the acquisition of English words, remained greatly further effective. The results of that research have showed that the usage of video competitions for language studying decreases the tension implicated with the procedure and creates it further fun to learn. In addition, educational video games have other beneficial impacts on students (Gridley et al., 2011). Learners who utilized video tournaments for education existed further aware, much more engaged, and perceived the practice as being extra interesting than learners who took part in conventional discourses.

5.13. LEARNER'S ROLES IN CALL

Contaminated with shifts in learning theory, the capabilities of computers, and instructional processes, the role of the students changes in relation to CALL in general, and in each phase of CALL, in particular (Gruba, 2004). According to Gruba (2004) "in structural CALL, students were dependent on programs of instruction that efficiently delivered grammar and vocabulary materials. Communicative CALL practices sought to place learners in independent relationships with the computer, as students progressed through interactive work with applications. Within integrative CALL, students are expected to work collaboratively and utilize the computer as a "toolbox" for group project work (p. 634)."

Part of this sometimes-rapid shift in the role of the learners in regard to CALL derives from economic and social changes, accordingly, "the shift to global information-based economies has meant a dramatic increase in the need to deal with large amounts of information and to communicate across languages and cultures" (Warschauer and Healey, 1998, p. 59). Therefore, students are required to adopt more effective search strategies than memorization or any other single way to approach a task. Affective and cognitive learner variables in relation to the use of computers have long been of interest to CALL researchers. One of these pervasive themes is that of motivation (Hanson-Smith, 2001). Part of the same research sometimes focused on "computer phobia" or computer anxiety, however, most reports in this regard which were mainly based on attitudinal surveys, student portfolios and self-reporting, indicate that students, with few exceptions, are highly motivated when using computers (Beauvois, 1988; Jaeglin, 1998; cited in Hason-Smith, 2001). Roed (2003) reports on evidence in the literature indicating that when communicating online, people show fewer inhibitions, display less social anxiety, and reduce their public self-awareness. She also refers to the fact that in online communication, people tend to be more willing to disclose personal information and more honest and forthcoming in presenting their personal viewpoints. Roed (2003) in her study concludes that there are a number of advantages for language learners when working online. First, there is neither an accent to be distracted by nor any time pressure, nor are there any interruptions from either the teacher or classmates. In addition, there are no immediate reactions such as giggles or raised eyebrows.

One other learner-related concept investigated by CALL researchers is that of autonomy, the aspect strongly highlighted in learner-centered approaches to language learning. According to Gubra (2004), one direction

in the move toward integrative CALL is to allow for, and promote, learner autonomy throughout a course of instruction since a fundamental predicament in CALL is that learners are highly expected to take a significant amount of responsibility for their own learning (Hubbard, 2004).

Murray (2007) believes that: "One of the advantages claimed for computer-assisted instruction is the ability for learners to work at their own pace in their own time. Computer-assisted programs often use as a selling point that the teacher will no longer be an instructor, but a facilitator. This shift is often summarized in the rather catchy phrase of changing from "the sage on the stage" to "the guide on the side." For some teachers, this constitutes a threat to their perceived role as instructor. To others, it supports their constructivist view of learning by providing opportunities for learners to take more control of their own learning (p. 750)."

Yet, Blin (2004) states that while the concepts and principles associated with learner autonomy underpin a broad range of CALL applications and research projects, "current debates and research paradigms in CALL do not provide adequate tools and models to investigate in-depth the relationship between CALL and the development of learner autonomy" (p. 337). Thus, Blin (2004), in her paper, explores the potential of cultural-historical activity theory to study this relationship, and in conclusion, she highlights the value of the activity theory concepts and principles for CALL research. Healey (1999; cited in Hubbard, 2004), notes that in developing autonomy for CALL purposes, learners need to know how to control "the time, the pace, the path to the goal, and the measurement of success" (p. 400). In this regard, she refers to two characteristics of CALL as its potential features to promote learner autonomy, i.e., appropriate level of challenge or difficulty and a variety of teaching methods.

Learner autonomy is only one of a set of characteristics that Hubbard (2004) believes that learners must develop for effective use of CALL: Computer and web literacy (McMilan, 1996; Sorapur et al., 1998), that is the knowledge on how to use computers and the Internet, is one of the basic sorts of knowledge learners need to acquire, however, as Hubbard (2004) discusses today computers are getting more and more user-friendly and are increasingly being considered as a natural part of the language education environment, thus this sort of training is now less critical and more often done on an individual, remedial basis. Yet, this does not mean these learners do not need to be trained in how to use specific applications (Hubbard, 2004).

Shetzer and Warschauer (2000) divide the electronic literacy framework

into three overlapping areas: communication, construction, and research. Thus, to become adroit at communication via computer, the learner must be able to interact and collaborate in decentered, asynchronous ways. Shetzer and Warschauer believe that "for skillful construction, students need to master hypertext authoring in order to blend written text, graphics, audio, and video together in coherent narratives." Moreover, they need to "learn to collaborate effectively, and take into account responses from both intended and Web-based unintended audiences" (p. 180). Students conducting research via the Internet need to improve their critical skills in order to evaluate both the validity and appropriate interpretation of source materials. In summary, Shetzer and Warschauer argue that learners engaged in electronic literacy practices must ultimately become autonomous and take charge of their own learning. Thus, learner strategy training is another aspect needed to be developed for the effective use of CALL (Hubbard, 2004).

5.14. TEACHER'S ROLES IN CALL

The integration of CALL into the classroom has definitely ascribed new roles and responsibilities to the teachers. According to Kramsch (1993; cited in Gruba, 2004): "the enormous educational potential of the computer is confronting teachers with their pedagogic responsibilities as never 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 (p. 201)." Gruba (2004) also elaborates on the role of teachers in relation to each of the phases of CALL as proposed by Warschauer (2000). According to him, in both structural and communicative CALL, "the teacher often served as a mediator between the computer and students throughout the learning process. Although computer usage generally fostered a "programed" approach to instruction, instructors were nonetheless reminded to stay on hand to keep things running smoothly" while "within integrative CALL, teachers are encouraged to take on a less intrusive role" (p. 637).

While a hasty judgment may lead to us to conclude that the use of computers in language learning may diminish the role of the teacher in language classroom, research suggests that typical CALL situations increase the teacher's workload to a large extent because as Murray (2007) asserts: "one result of using some computer-based technologies such as email, especially in distance learning, is that students consider they are Socrates on

one end of the log with their teacher as Plato on the other. In other words, they expect immediate and individual responses to their questions and concerns. Such a situation increases the teacher's workload considerably. For instead of a class of 40 students, the teacher has 40 classes, each with one student (p. 750)." Part of his heavy load arises from the fact that technology has given learners more responsibility formerly held by teachers to direct and evaluate their own language learning while learners are generally ill-prepared to take on that responsibility (Hubbard, 2004). Therefore, teachers are encouraged to train their students within the confines of their own classrooms. In this regard, Hubbard (2004) refers to the teacher's role in training the students in general computer literacy, training for specific applications, and learner control. Teachers also play an important role in developing effective learning strategies in the learners and promoting autonomy in learners. Healey (1999; cited in Hubbard, 2004) claims "the facilitator in an autonomous setting has a sustained role to play in encouraging learners to use a variety of materials and methods and in explaining how to go about it" (p. 399).

Gruba (2004) refers to the possible seduction of technological environments and refers to Kramsch and Anderson (1999) who believe that "multimedia can seemingly dull the capacity to be critical. That is, sophisticated productions can lead us into believing that what appears real on the screen is real in life" (p. 39). Because of this, one responsibility for teachers regarding students is to "deepen their understanding of the relationship between text and context when teaching language as communicative practice" (Kramsch and Anderson, 1999, p. 39; cited in Gruba, 2004, p. 637) in order to avoid portraying multimedia in simplistic ways. Due to the significant role of the teachers ineffective use of computers and implementing CALL premises in language classrooms, the area of CALL teacher education has received great attention, particularly in the last decade (e.g., Arnold and Ducate, 2006; Egbert et al., 2002; Hubbard and Levy, 2006). According to Hubbard and Levy (2006), teachers' preparation "ranges from reading a single chapter within a comprehensive methodology textbook (e.g., Sokolik, 2001) or participating in a one-time in-service workshop, through dedicated courses and seminars, CALL course series, CALL certificates, and even CALL graduate degrees" (p. 265).

5.15. OPEN CALL

In the case of Open CALL, we can see that from around 1980, there was a gradual awareness that previous approaches had indeed been Restricted, and

those new approaches were needed. In this sense, attitudes to using computers were more open (as can be seen from Underwood's list reproduced earlier) and we're certainly becoming more humanistic (cf. Stevens, 1992; cited in Bax, 2003) but mostly owing to technological limitations related to hardware and software it was not possible to use computers for realistic communication in a CLT vein until the advent of effective CMC, the web, widely available email and so on (nowadays, however, it is indeed possible to use computers for genuine communication, as we can see in discussions such as Motteram (2000; cited in Bax, 2003). It would therefore be possible to argue for a more genuinely 'communicative' role for CALL from around 1995 onwards, at least in terms of software. However, this Open aspect of the technology and software is by no means matched by an Open attitude in other key areas of implementation such as teachers' attitudes, administrators' attitudes, and timetabling. Furthermore, much software being produced today is still of a relatively Restricted type. For this reason, we could argue that in general terms, we are in an Open phase of CALL, but that each institution and classroom may also exhibit certain Restricted and even Integrated features. In terms of true integration of CALL within language teaching and learning (which has been a goal for decades—see, e.g., Sanders and Kenner, 1983), we are still a long way from achieving it, and it is important therefore to start to reconsider how the profession can move towards that general aim.

5.16. CHANGES AND THE FUTURE OF CALL

In discussing the technological changes and the future of CALL, Warschauer (2004) refers to Shneiderman's (1997) expression of the value of computers in instruction who states that "we must do more than teach students to 'surf the net,' we must also teach them how to make waves" (p. vii). Thus, as Warschauer (2004) points it out, teachers will make the best use of computers in the classroom when students are encouraged to perform the most real tasks possible, taking advantage of the power of modern information and communication technologies to try to change the world in ways that suit students' own critical values and the interests of humankind. According to Sokolik (2001), there is nothing certain about the future of technology, except that it will no doubt become more ubiquitous and powerful. Thus, novel questions keep be raised with regard to this inevitable force, for instance, to what extent can CALL be regarded as a culture-bound phenomenon? As it was discussed in this chapter, teachers, and learners must adopt new roles and responsibilities so that CALL will facilitate and augment the process of

language learning, but does it mean that learners and teachers have similar beliefs and attitudes toward CALL and can embrace this fashionable trend in the same manner? CALL is based on the idea of using computers, a gadget void of any sort of human feelings and emotions but is there a chance to utilize this device to better 'humanize' the convoluted process of language learning? In other words, are 'humanizing' and 'computerizing' language learning compatible? No doubt, ample research is needed to answer these and many other questions proposed in the realm of CALL, but what is clear is that computers are now an inseparable part of human life and they are swiftly entering more and more houses and settings, thus what now sounds most reasonable is an attempt to prepare the context in the most plausible and effective way.

Smart devices, such as cellphones, laptops, iPods, and iPads, are fragment of our everyday lives. By changing the use of these devices for language learning, self-regulated learning can be created. Future studies can include how to evaluate mobile apps from a self-admission studying perspective. Learners select what they are going to acquire, how they are going to acquire, and how they are going to judge for themselves their individual acquiring. Via self-admission teaching, learners will decide when and where to acquire using online resources. A further recommendation for upcoming effort and research may be that the age cluster should make better use of the technology established on the tasks expected. The third could be to deal with disconnected cellphoneapplications in low-financial countries. Numerous countries around the world are immature and frugally deprived, and in education, those nations are unable to afford or implement mobile devices successfully. Off-line apps will further improve learners' acquiring in these countries. The last recommendation for upcoming investigation may emphasis on the instructor's nervousness about the usage of cellphone platforms in instruction the English language. For effective language teaching, teachers have to resolve the challenges of integrating technology.

Teacher instruction and teacher skills should be considered by administrators to be of the greatest position. If plan managers need their instructors to consume equipment efficiently, they ought to confirm that instructors are conscious of the educational basics of language instruction and teaching. Managers do not believe that the usage of technology can benefit from enhanced instruction. They ought to recall that educationally sound education may guide to technology's beneficial usage.

The controversy about whether modern literacy is really new seems to suggest, consistent with the rise of PC equipment, that the use of computer

technology will be normalized in the future. However, an item for certain is that it is even on the scale in the last step of the standardization of CALL. According to Warschauer (1996) computer usage can be used as a main element of language acquiring and language usage rather than as a discrete case. Furthermore, the recent century request for better student independence changed the old-fashioned method all language abilities can be taught in the time ahead with the supple usage of digital learning tools such as cellphones. Consequently, the use of MALL as a modern teaching aid in the classroom is recommended (Kukulska-Hulme, 2013).

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Technology Enhanced Language Learning: COVID-19's Impact on Digitalization of Education

The use of technology in education in general and English as a Foreign Language (EFL) context, in particular, drew the attention of the practitioners and second language (L2) professional researchers. Currently, technologies have been adopted in L2 settings to enhance the process of language learning. The use of this technology and distance learning become a must during the CORONA virus attack in the world. In response to the coronavirus outbreak, all educational settings were closed. This unexpected decision left the system of education in limbo. To minimize the effect of the prolonged shutdown, many teachers should employ different social networks as a base platform to teach online instruction. The majority of school teachers used common messaging platforms such as Skype, WhatsApp, Telegram, or a learning management system (LMS) to teach. Mobiles with all capability become accessible in all urban and rural areas of many countries. In effect, in many countries, the widespread access to such a sophisticated device have rather changed the landscape of electronic learning (E-learning). In fact, mobile learning can be considered as the next generation of e-learning. It can serve as an extension for learning in a new environment with new capabilities. The digitalization of education comprised different aspects of quality that sharpen critical thinking skills, promote cooperation, and teamwork. In many parts of the world, the summit of distance learning has occurred during the COVID-19 pandemic. The COVID-19 pandemic has affected educational systems worldwide. Accordingly, this pandemic led to the near-total closures of educational settings ranging from schools to universities. As of 18 May 2020, approximately 1.725 billion learners were affected due to school closures in response to the pandemic. Accordingly, teaching and learning have altered drastically, with the constructive promotion of E-learning. This pandemic led education to undertake online instruction and incorporated different digital platforms. This book introduces a brief overview of language teaching and instructional technology. In addition, it gives a critical look at computer/mobile assisted language learning (MALL), and electronic tests (i.e., technology-assisted language intervention (TALI)). Finally, the book ends with learning shifting toward online learning during the COVID-19 pandemic. The book also outlines factors influencing the quality of online learning, parents' attitudes toward online learning, and teachers' challenges for online classrooms during Coronavirus.

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