

## Using Technology towards Promoting Online Instructional Scaffolding: Literature Review

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### Abstract:

Technology offers opportunities for teachers to interact with students in a very authentic and compelling way. This review aims at answering the review question: Can technology promote online instructional scaffolding in teaching and learning? To answer this question, the researchers review different studies that investigate the implementation of applications and software in English language teaching and learning. The study highlights methods of using technology to overcome problems of time limitations and other barriers and create more meaningful teaching and learning. Technology makes learning more student-centered through instructional scaffolding, which promotes teaching and learning and enhances student's interaction skills. Moreover, using technology helps to teach as it has an emotional influence that encourages students to develop their personality and learning skills.

*Keywords:* CALL, CMC, learning, instructional, promoting, scaffolding, skills, technology

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## Introduction

Language teachers today are faced with so many fascinating options for using technology to enhance language learning that could be overwhelming. Many compelling opportunities for teachers are linked with technology trends, including social media, collaborative and instructional software, and virtual learning platforms. These technologies are familiar to many people, and the use of them in personal lives has become an expected societal norm. However, using these technologies for language teaching is often overlooked. Many language teachers are unfamiliar with the research and practice produced by professionals in the field of computer-assisted language learning (CALL) (Kessler, 2018).

There is a considerable gap between all the tools teachers have used in the past, and what they are using now to teach their students. In spite of this development, students attention and motivation to learning are not satisfying compared to old times. Hence, educators try to get their students attention to learning using all available methods that can help convey their message.

Five benefits of educational technology in learning English are indicated in Computer-Aided E-learning (CAE) (Dexway, n.d). It is the best complementary tool for teachers in the classroom. Technology is motivating and stimulating for students. It is easy to manage and monitor students progress via technology. Moreover, educational technology creates as well a unique experience as much for the teacher as the students. It also promotes interactivity and collaboration within learning and teaching.

On the other hand, the technology explosion made students frustrated, and they are busy-minded with applications used for social media. Teachers could catch their students attention by using these beloved applications to students and make extreme advantages of them.

## Significance of the Review

This review investigates the extent to which teachers can leverage technology-mediated social interactions to promote online scaffolded teaching. Moreover, it shows how they can engage students in learning experiences in ways that will encourage them to practice language extensively using collaborative Blackboard virtual classrooms, WhatsApp, as well as Zoom App, and software. This review highlights the impact of these Apps and software on promoting scaffolded distance learning as well as students engagement and motivation.

## Review Question:

This review paper attempts to answer the following question: Can technology promote online instructional scaffolding?

## Review of Literature

The researchers review different studies to find the impact of using certain technologies (i.e., virtual classrooms of collaborative Blackboard, WhatsApp, Zoom App, and software) towards promoting online instructional scaffolding.

The studies are reviewed about using collaborative Blackboard virtual classrooms, WhatsApp and Zoom App and software used for blended learning (BL) as examples of educational technology methods that could help in promoting online instructional scaffolding.

### **Studies Related to Computer-Mediated Communication (CMC)**

Ahmadi (2018) reviews many studies on using technologies in improving language learning skills and states specific recommendations for the better use of these technologies, which assist learners in enhancing their learning skills. The results of the literature review he explored indicate the effectiveness of using new technologies in improving learners' language learning skills.

Tarhini et al. (2016) propose a theoretical framework that might help understand the various factors that are expected to influence the adoption and acceptance of e-learning systems in the context of developing and developed countries in the context of higher educational institutions.

Fageeh and Mekheimer (2013) indicate that the students experiences of using computers, the internet, and Blackboard vary. The longer the students experience, the more positive their attitudes were toward the use of computer-mediated communication (CMC) to develop academic literacy. Students who experienced Blackboard communication had a more positive attitude toward the factors of productivity, collaboration, and participation. Results show that Computer-Mediated Communication (CMC), mainly in the form of online discussion and online peer review activity, facilitated students interactions and scaffolded teaching within their online community.

CMC refers to those communications that occur via computer-mediated formats (e.g., instant messaging, e-mail, chat rooms, e-mail, online forums, and social networks). It also applies to other forms of text-based interaction, such as text messaging. Numerous studies have explored the potential of instructional applications of popular CMC tools. These tools are typically identified as either synchronous or asynchronous. Communication using synchronous tools tends to resemble face-to-face spoken communication and includes technology such as texting and chats. In contrast, asynchronous communication typically involves a period of time between turn-taking and requires technology such as e-mail, online discussions, and blogging (Kessler et al., 2012).

### **Studies Related to Instructional Scaffolding**

Instructional scaffolding is the support given during the learning process, which is tailored to the needs of the student with the intention to help the student achieve his/her learning goals. This learning process is designed to promote a deeper level of learning. The support and guidance provided to learners facilitate the internalization of the knowledge needed to complete the task. This support is weaned gradually until the learner is independent. The term scaffolding first appeared in the literature when Wood, Bruner, and Ross described how tutors interact with learners to help them solve a problem (Wood et al., 1976). Then, it was proposed by a Russian psychologist, Vygotsky, in 1978, who emphasized that high human level of mental activities exist in social interaction.

An article about instructional scaffolding presented by Northern Illinois University (n.d.) answers the question: Why using instructional scaffolding? One of the main benefits of scaffolded instruction is that it provides a supportive learning environment. In a scaffolded learning

environment, students are free to ask questions, provide feedback, and support their peers in learning new material. Scaffolded instruction is a unique teaching style that offers the incentive for students to take a more active role in their learning. Students share the responsibility of teaching and learning through scaffolds that require them to move beyond their current skill and knowledge levels. Through this interaction, students can take ownership of the learning event.

Larkin (2002) lists eight essential elements of scaffolded instruction that teachers can use as general guidelines contained in different sequences. The first is *pre-engagement with the student and the curriculum* in terms of associating appropriate tasks with curriculum goals and the students needs. Scaffolded instruction also helps *establish a shared goal* as teachers work with each student to plan instructional purposes to make students more motivated and interested in the learning process. It also *actively diagnoses student needs and understandings*. The teacher must be aware of the students background knowledge. Scaffolded instruction *provides tailored assistance*, which includes cueing, prompting, questioning, modeling, telling, or discussing different topics or ideas. The teacher uses such techniques of learning to meet the students needs. Scaffolded instruction *maintains the pursuit of the goal*. The teacher can ask questions and request clarification as well as offer praise and encouragement to help students remain focused on their goals. In this way, this method allows teachers to give *feedback* to help students learn to monitor their progress and note behaviors that contribute to each student's success. It *controls frustration and risk*. Teachers encourage students to try alternatives to create an environment in which the students feel free to take risks while learning. Scaffolded instruction also assists internalization, independence, and generalization to other contexts, that means the teacher provides the opportunity to practice the task in a variety of settings to help the students to be less dependent on the teacher's extrinsic signals to begin or complete a task.

There are three essential features of scaffolding that facilitate learning (Meyer & Turner, 2002). The first feature has to do with the interaction between the learner and the teacher. This interaction should be collaborative for it to be effective. The second feature is that learning should take place in the learner's zone of proximal development. To do that, the teacher needs to be aware of the learner's current level of knowledge and then work to a certain extent beyond that level. The third feature of scaffolding is that the scaffold, the support, and guidance provided by the teacher, is gradually removed as the learner becomes more proficient and independent.

### **Studies Related to Blended Learning (BL)**

Al Bataineh, Banikalef, and Albashtawi (2019) allude to the positive impact (BL) has on the learners' English grammar performance, satisfaction, and motivation. They conclude that (BL) is used as an effective method of teaching English grammar in EFL settings.

Cohen (2018) asserts that technology is a tool; it is not the solution. It is not an either/or proposition, for example, I only use technology in my class, or I don't use technology in my class. It is used when needed either in a flipped classroom setting or a blended classroom setting.

Hamad (2017) confirms that although students prefer regular classrooms, students results in the electronic test are much better than in the paper test. She adds that in spite of students preference for traditional classroom lectures, the students agreed that using blackboard for (BL) helps them in different ways. It helps them get lesson-materials or watch recorded lectures when they are absent. They also learn from their classmates' mistakes in discussion blogs. Moreover, they learn according to their learning styles. They feel dependent and secure to have regular contact with their instructor and get quick feedback for their questions and confidential tests grade results. These findings help to reinforce students motivation and affect their learning outcomes positively, in spite of the negative effect that results from lousy internet access, which sometimes affects using the Blackboard on time.

Hussin et al. (2015) show that there is a significant change in students attitudes toward writing after they had engaged in the writing process approach and CMC applications in the course. They explain that there was a positive effect on students writing performance and improvement on their writing anxiety level, mainly through the use of CMC applications.

Alharbi's (2015) findings indicate that after using Blackboard's Discussion Boards, Blogs and Wikis, the students performance on an integrated reading/writing test was improved, and so were their attitudes towards literacy skills. The findings also show that the e-course tools facilitated students interactions and supported learning of the reading/writing skills in a growing online discourse community by developing positive attitudes toward these tools.

Larsen (2012) asserts that (BL) affects student perceptions of the English as a second language (ESL) writing course and makes them feel more responsible for their knowledge. In other words, students take ownership of their education.

Kozma (2005) points that putting computers into schools is not enough to have an impact on students' learning. Still, specific applications of information and communication technology (ICT) can positively impact student knowledge, skills and attitudes, as well as teaching practices, school innovation, and community services.

### **Studies Related to Using Zoom Program in Teaching & Learning**

Miller (n.d.) highlights many reasons that make ZOOM a very useful App and software for teaching according to her experience. It can be easily connected by clicking a URL link and instantly be transported into a conversation with teachers. It helps small group discussions in group classes by creating "breakout rooms." In Tech Land, a breakout room is an equivalent of putting learners with a partner (or partners) in the classroom so that the teacher can facilitate small group discussions, and then bring everyone back together. It has control over recording and saving their sessions to their hard drive by video recording. Zoom's connection quality is more reliable than Skype, and lets teachers easily share their desktop and then "annotate" or write directly on top of whatever is showing. It also lets teachers play audio files on their computers just as quickly as it enables any student to play an audio file off their computer. Besides, Zoom webinars are the simplest and cheapest platform that allows teachers to start a presentation and have full control over the viewers' experience and then later switch to two-way communication, where you give attendees the option to speak with teachers.

Ermeling (2018) suggests that using Zoom helps as segments approach to overcome problems of time limitations and other barriers and create more meaningful teaching and learning opportunities. This study proves that using ZOOM helps students get to a deeper understanding and achievement of learning goals. This study also suggests that teachers who use pivotal segments report: increased satisfaction with team planning and clarity about what they are teaching, a better understanding of how their instructional choices affect student outcomes positively, and a renewed commitment to the ongoing refinement of teaching and learning.

Obari and Lambacher (2014) confirm that students were satisfied with their flipped classroom lessons by the (BL) environment that incorporated mobile learning.

### **Previous Studies on Using WhatsApp and Twitter in Teaching & Learning**

WhatsApp is the most common used App among the students that do not need a computer. It is an available and cheap application to activate. Also, students favor using it, and according to the development in the digital world, they always have their smartphones in their hands.

Aktas and Can (2019) reveal that using WhatsApp outside the course leads to a significant differentiation in the self-efficacy beliefs of the students for both reading and listening. They also indicate that using WhatsApp has an emotional influence in the form of happiness, joy, excitement, and pride. Hence, students considerably support the use of WhatsApp in their learning process.

The findings of Annamalai (2019) reveal that the majority of the students express their preference to use WhatsApp in their reflections. Although there are many problems which are identified by the students such as: overloaded messages, small screen, technical issues, and being swamped by too many words that upset the receivers and consume their storage.

Herskovitz et al. (2019) point that WhatsApp has a unique contribution between teachers' and students out-of-class communication, and it should be considered by policymakers while formulating policies for the use of online social networks in educational settings. This relationship has two main effects on society at large. The first is promoting better student-teacher communication that can improve teaching and learning. Second, if communication is carried out properly, the students will learn to behave in a correct way in their digital age.

Kootbodien et al. (2018) investigate the use of emoji and text messages as a replacement to the interpersonal communication that conventionally occurs in the process of face-to-face interaction. They find that Abu Dhabi University students consider WhatsApp to be an effective interpersonal communication medium. Although miscommunications often occur while using WhatsApp, the perceptions of the respondents varied greatly due to their own experiences and feelings regarding its use between acceptance and refusal.

Cetinkaya (2017) indicates that WhatsApp has the potential to provide a natural and unstructured learning environment through academic support by sustaining the cooperation and problem-solving processes of students towards courses and their content in and outside the school. It also helps in organizing educational activities and allows students learning unwittingly, regardless of time and place, and it helps students in sharing the materials and resources.

Rajab et al. (2017) explain that Saudi learners showed a positive perception of using Twitter in learning English. They believe that Twitter is employed as an English learning tool that promotes learning English among EFL Saudi learners.

Hamad (2017) explains that WhatsApp can be an alternative to virtual classes that help absent students to catch up. It can help students feel secure by having continuous interaction with their instructors, even when they are not around. WhatsApp helped students develop their writing and learn from their colleague's mistakes. Using WhatsApp helped students to believe in their abilities and to have confidence and increase motivation towards learning.

The researchers used the systematic qualitative method to review the previous studies, which have been tackled using technology in teaching and learning to determine the impact of the used methods as well as their shortcoming. They were trying to shed light on the benefits of these technologies; Apps and software, to make teaching and learning more enjoyable. Moreover, the results of this review may help educators to use different technological methods that can promote instructional scaffolding. Considering the widespread use of the applications and software among students, it became necessary for teachers to update their knowledge about what is new in this field. Teachers should look for Apps that their students are familiar to. In other words, the results of the studies reviewed above reveal that teachers can make use of technology in promoting instructional scaffolding.

### **Results and discussion**

The researchers reviewed different studies to find the impact of using technology, and how it enables teachers promote online instructional scaffolding. The results revealed the following: Using technology can help teacher promote online scaffolding learning and teaching by creating opportunities for students to collaboratively co-construct their knowledge, and developing autonomy over students learning, and increasing their motivation, and contributing to their engagement Reinders & Hubbard (2012). Moreover, introducing such practices to teachers in preparation would help them toward considering possible future applications. The results also revealed that the potential for adapting our digital social practices in teaching and learning contexts is vast and should be more explored. Such technologies have a positive impact on students' knowledge, skills, and attitudes, as well as teaching practices, school innovation, and community services. These applications and software also help to reinforce students' motivation, and affect their learning outcomes positively. They facilitate students interactions and support the learning of reading/writing skills in a growing online discourse community. They also have a positive effect on students writing performance and improvement on their writing anxiety level, mainly through the use of CMC applications, which can facilitate students' interactions and scaffolded learning within their online community. Besides, they overcome problems of time limitations and other barriers, and create more meaningful teaching and learning. These applications help teachers increase clarity about what they are teaching, a better understanding of how their instructional choices affect student outcomes positively, and a renewed commitment to the ongoing refinement of teaching and learning. Using technology leads to a significant differentiation in the self-efficacy beliefs of the students for both reading and listening as they have an emotional influence on students. These applications create a unique contribution between teachers and students out-of-class communication towards promoting better student-teacher communication that can improve

teaching and learning. They can create effective interpersonal communication medium for learning and education, and help absent students to catch up. It can help students feel secure by having continuous interaction with their instructor even when they are not around. Through using these applications, teachers can organize academic activities and help students learn unwittingly, regardless of time and place. Students can share materials and resources using these applications.

Teachers use the appropriate App or software that is more used and preferred by their students and suit the learning environment. Teachers must update their information about Apps and software to know which one is suitable to apply, and how to apply it effectively to succeed in scaffolding teaching and learning. The results of the studies reviewed above reflect how using technology promotes education and different learning aspects, such as enhancing students learning, helping teachers in education, and providing positive effect on attitude and skills. However, the results also reflect barriers and problems that are associated with using technology such as: inadequate internet access, using small screen, technical issues, storage consume of devices, and acceptance and refusal of using these Apps. These problems and barriers affect the strength of achieving lessons objectives. Pointing and researching advantages, durability, obstacles, challenges and shortcoming associated with using these Apps as a technological method, will be a potential field for studying by other researchers to find solutions for these problems and failures, to make the maximum use of technology in the different pedagogical areas, whether it is used as a tool that facilitates scaffolding teaching and learning.

## Conclusion

This study has presented and reviewed the theories of opportunities to embrace certain technologies and the associated social practices they promote to make technology integration relevant and engaging. Teachers must be familiar with a variety of online learning contexts to appropriately prepare for more robust and sophisticated future interpretations of these domains. Under teachers' strategies of online scaffolded guided learning, students proved to achieve more progress in the learning process.

Understanding previous attempts helps to expect various challenges and solve problems that can associate the adoption of using technology in education. This makes learning more student-centered through instructional scaffolding, which is necessary for anyone who wants to strive to create the individualized and intelligent data-driven learning systems of the future.

This review sheds light on techniques and approaches that can help in motivating researchers to do further studies on using technology to promote instructional scaffolding. Using such Apps as an educational tool or a method that facilitates teaching and learning is found to be of real significance. While researchers are trying to develop the pedagogical process by using any means that are attainable and practical, there is a need for further studies about using all Apps and software, which influence the students learning and bring learners together as a substitute to real classroom learning, as presented in the review of the literature. The analysis of the literature shows how using different Apps and software require knowledge and training to use them properly, making use of the advantages of these Apps and software and overcome their limitations. Further studies on using technology to promote teaching and learning will help to focus on different types of Apps and software for blended teaching and learning. A review of differences between separate



applications is needed to help teachers choose the appropriate Apps and software, that suit their students educational system, learning environment, curriculum or text content that to be taught for a specific required pedagogical process. These apps can be educational tools that support traditional teaching, enhance students learning, and help to shed light towards technological methods, which promote instructional scaffolding.

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