

# The Role of Educational Technology in the Language Classroom

KHAWLAH AHMED<sup>1</sup>, THARWAT EL-SAKRAN<sup>2</sup>

<sup>1,2</sup>*Department of English, American University of Sharjah*

*Abstract- From the earliest stages of the COVID-19 pandemic, the need to incorporate and utilize technology in all aspects of all teaching and learning became apparent to all involved in academia. This need for technology would not just be a band-aid to help us across one or two tricky semesters. Instead, this embracing and recognition of the modern role of technology would be a transformative surgery that could lead to fundamental improvements in student performance and learning. The changes we have witnessed take many forms, from using Information and Communication Technologies (ICTs) and learning management systems (LMS) to adopting a wide variety of automated tools and forums suitable for blended learning (BL) environments and teaching approaches. Research which assesses the effectiveness of these approaches and associated technologies on student learning and performance post Covid era are surfacing. Such research deals with LMS's such as Blackboard; however, integrating such technology in classroom practices is no simple task. While the prevailing idea is that technology integration transforms classroom practices by facilitating teaching and learning in more creative and innovative ways, such a conceptualization and underlying assumption needs to be examined. With the rapid technological advances, and the dire need to use technology in post pandemic contexts, educators need to become aware of such technology and how it can be utilized to transform teaching and learning and prepare learners with the 21st century skills needed. This said, educators need to also be aware that incorporating such technology, comes with challenges. This paper discusses LMS's and examines their effectiveness on student performance and presents the challenges, practices, and approaches relevant to the successful*

*integration of ICTs in the language classroom context.*

*Indexed Terms- Information and Communication Technologies (ICTs), learning management systems (LMS), teaching, technology. Keywords: ICT, learning management systems, language classroom, online learning.*

## I. INTRODUCTION

At the forefront of educational priorities has always been improving student performance, enhancing student learning, and getting students to be active in the learning process. To help achieve such goals, academic institutions have moved towards incorporating Information and Communication Technologies (ICT) so that educators can experiment with approaches that may enhance and or complement traditional methods of teaching. In the field of education, Information and Communication Technologies (ICT) refer to computationally based systems that facilitate an interaction between the learner and information. Over the first decades of the 21st century, these systems have created innovative, transformative learning and resourceful classrooms [1]. Such a claim is supported by considerable research, leading to the widespread argument that ICT is beneficial “in almost all stages of education” [2]. Consequently, most courses in developed countries include Internet-based activities [3].

Indeed, such is the development in technology that higher education is able to move rapidly to ever-greater distance learning opportunities. These opportunities can provide more “individualized” and “just-in-time” “hybrid” classes through a combination of “online learning components with less-frequent on-campus, in-person class meetings” [4]. As such, not only do ICT improve classes, but

they also provide the infrastructure for learning opportunities to a significantly broader audience. In short, ICT is no longer the future, it is very much the present. The role of ICT is likely to increase as new components such as game mechanics become an increasing feature, serving the purpose of increasing task engagement and decreasing attrition [5][6][7].

Most courses in developed countries included at least some Internet-based activities [8] in the post coronavirus disease (COVID-19) pandemic era with the initial purpose of supplementing, but not replacing them. Indeed, such was the development in technology that higher education's aspirations were moving towards, being able to move rapidly to ever-greater distance learning opportunities, an aspiration quickly realized during the Covid-19 pandemic in 2020, when the pandemic disrupted global interaction, closed borders and shut down regions [9]. Due to social distancing, the pandemic forced all teaching to go online, tremendously impacting the acceleration of online learning and changing the teaching process in institutions across the globe. During the pandemic, online e-learning took place using network systems provided by university websites and online applications [10].

The rapid adoption of digital technologies and online courses has led researchers to question its impact on student's educational engagement and learning outcomes. Research conducted has presented generally favorable findings. As such, while some research shows no significant difference between online and traditional learning (see [11][12][13]) many studies support the effectiveness of using online learning [14] [15][16][17][18][19]. Taken as a whole then, empirical evidence does suggest that there is significant positive impact of online, blended, and hybrid courses on learning outcomes.

The positive impacts have been attributed to the fact that on-line learning technologies and blended/hybrid learning not only accommodate pedagogical requirements, disciplines, and course levels, but also student needs [20]. Specifically, they have positive effects on student interaction, motivation, skills, performance, and achievement [21][22]. They have also been described as fair in their assessment practices [23] and reported as aiding in helping

students become responsible learners who can utilize the knowledge they gained in a variety of contexts [24][25]. Furthermore, positive effects on students' academic outcomes and increased student engagement and ownership of learning have been reported, and teachers have also reported that it enables them to be more effective in being able to meet student needs and make fundamental shifts toward higher-value responsibilities [22]. In sum, the studies report that using such technologies in blended/hybrid learning contexts increase student motivation, ownership of learning, and improve academic outcomes.

That said, while the use of digital technologies is clearly beneficial and there is reliance on online learning and ICT's, such technologies that fall within its scope require constant appraisal and testing so that progress towards achieving education priorities can remain robust. Thus, the purpose of this paper is to discuss educational technology, such as LMS's, and the concerns relevant to the successful integration of ICTs in the language teaching contexts.

## II. LEARNING MANAGEMENT SYSTEMS LMS

It's Learning management systems (LMS) have been variously referred to as 'course management systems,' 'content management systems,' 'distributed learning systems,' or 'instructional management systems.' They have also been referred to as 'learning platforms,' 'portals,' or just 'virtual learning environments.' Whichever designation is preferred, the purpose of all LMS is to "combine a range of course or subject management and pedagogical tools to provide a means of designing, building, and delivering online learning environments" [26]. As such, LMS incorporate interactive technology in the classroom [27] [28] and offer different levels of interaction and potential to create active learning contexts [2].

For a more detailed description of LMS, Vázquez-Cano and García argue that three major requirements must be present for LMSs to be considered fully developed. First, the system must provide an interactive interface through which instructors and students can communicate and exchange information.

Second, the system must provide digital content of the curriculum, assessments, and assignments. Third, the system must include tools that assist in learning activities and classroom management. As additional features, the authors also expect that an optimal LMS should be able to “centralize and automate administration, use self-service and self-guided services, assemble and deliver learning content rapidly, consolidate training initiatives on a Web-based platform, support portability and standards, personalize content, and enable knowledge reuse” (p.63). In short, a fully developed LMS is a broad-system and can be distinguished from narrow-system ‘apps’ by the extent of their scope, their application, and the breadth of stakeholder inclusion.

The academic scene in higher education institutions is heavily being dominated by LM’s [29], especially in hybrid and blended learning environments. Defining what exactly constitutes or distinguishes hybrid and blended learning remains in question [30] [31]. However, both approaches are clearly a conduit through which technology facilitates learning while minimizing the issue of distance (see [32] [33] [22] [34] [35] [36] [37] [38]). Thus, while universally agreed terminology has yet to emerge, the fact that technology is driving forward the out-of-classroom learning experience can be of little doubt [39][8].

Although LMS, by definition, is a broad system, perhaps its most important feature is its ability to increase teacher/student communicative feedback. Research suggests that feedback is essential to student success [40] [41] [42] [43] [44] [45] [46], but no matter how much faculty may want to help their students in a traditional setting, the amount of feedback they can provide and the time they can allocate is limited. A LMS is thus a facilitative system as its tools can provide automated feedback, and its communicative features provide instructors with speedy knowledge of existing problems, the answers to which can be provided to an individual student or shared with the whole class.

A great deal of this LMS research has concentrated on systems such as Blackboard, Desire2Learn, and Moodle. Publishing companies, such as Pearson and McGraw Hill Education, are providing online learning management systems. These various

adaptive and course management systems are available for a range of courses and are being used in blended learning contexts as complementary or supportive techniques to the conventional in-class, face-to face instruction methods. The leading course management system for McGraw Hill Education is Connect, and this system is being used extensively in higher education institutions around the world. Connect has 680 course titles and over 71 disciplines across the curriculum being used by millions of instructors and students [47]. Such research has shown that course management systems, like Connect, has many benefits and positive impacts on all aspects of teaching and learning, such as student performance, pass rates, average exam scores, and final course grades [48][49].

In brief, Connect is a web-based study program that like the majority of LMS, it offers a wide variety of generic tools. In addition to an eBook with quizzes and practice problems for each chapter, it offers tools that include discussion forums, lesson plans, syllabus, chat, options for file sharing, management of assignments, and interactive tools such as audios and videos. These tools offer a variety of help that guide students with assignments such as eBook Links icon that help students answer specific questions, practice and homework assignments, or open-book quizzes and tests. The View Hint link tool offers suggestions if students are not sure how to go about answering a question. Other tools allow students to check their work after answering a question, allows students to ask the instructor questions about the assignment where instructors can respond directly to the individual student or to the entire class, to practice questions tool option available for most science, math, and engineering algorithmic questions that allows students to practice non-scored versions of assignment questions. For instructors, these tools can provide considerable power, from creating various assignments and projects, to following students’ progress through each assignment and across the overall course, to having full control of material such as assignments that can be selected from chapter templates or by selecting specific questions from the question bank, to content, topics, quizzes, tests, number of attempts to complete an assignment, and due dates. Connect has a grading system that can grade an assignment allowing the instructor to have

discretion in defining points per question, giving partial credit and exporting the grades to Microsoft Excel.

However, while studies conducted in collaboration with McGraw Hill Education have been positively reported, relatively little independent research has been conducted on the use of this system. Such independent research is necessary because Connect is currently being used in many higher education institutes across the world. One of the few studies conducted on Connect is that by [50]. Their study was conducted in one university where Connect has been incorporated in a number of departments, providing support for courses including English, Business, Economics, Engineering, and Mathematics. Their study examines the effectiveness of Connect on course grades in an undergraduate pre-calculus course. The results of their study provide evidence that students grades may be positively impacted when using Connect, and therefore provide some support for the claims that open learning ecosystems (as compared to peers studying in traditionally taught courses) improve student pass rates, elevate grades, and improve learning [51][47][52]. They reported factors that were likely to have benefitted students, such as availability, assistance, easy access to Connect information and help tools, receiving immediate feedback, being able to study at their own pace, allowing them opportunities to engage with their work, think, reflect, and develop self-regulating skills.

### III. CHALLENGES OF ADOPTING DIGITAL TECHNOLOGIES IN THE CLASSROOM

However positive the impacts of digital technologies are, adopting such technology in the classroom context comes with challenges. Many factors need to be considered when looking at the research being conducted on its use in the classroom. In looking at for example, at LMS's and the study by [50], though the findings are positive, as the authors themselves highlight, generalizations cannot easily be made from their results, as is the case with other results from many of the studies conducted. Such experiments, as the one conducted by [50] are limited, whether the limitations are in the number of teachers participating, the students or the number of groups,

the application of the technology being used to a single subject course or parts of a course, such as just for homework assignments and quizzes and not the whole course which is more likely to provide a better understanding of the usefulness of the system. In looking at the factors that are impacting student performance, for example as this study does, many factors need to be taken into consideration, such as the students' backgrounds on the subject, their motivation levels, and their perception of the system/technology being used. Correlations established between online assessments and the total course grades do not guarantee a cause-and-effect relationship between variables.

Other elements that also needs to be considered is a comparison of broad-systems, like learning management systems, to narrow-system apps, which target a specific task. For example, consider a tool such as Auto-Peer [53] which is an app that provides extensive feedback on written assignments, pointing out potential writing issues, and offering guidance to improved written structures. Such an application lacks numerous elements of a LMS like Connect; however, its specificity and analysis may offer greater feedback to student assignments. One question that may have to be answered is which of these approaches (the broad or the narrow) is more beneficial, or whether the two approaches, working in tandem, provides the most beneficial results.

Thus, such studies primarily serve to provide encouragement for further research so as to better understand the contribution of online learning and the complexities and factors that need to be considered within the classroom context. Whether we are looking at Connect, as seen above, or another LMS, like Moodle and its value as a means of learning (see for example [54] and teaching in the classroom, though there are advantages of using LMS's which is indicated, as [55] say, by the suitability of the LMS applications in doing things such as creating, distributing, and managing the learning content anytime and anywhere, there are many factors, challenges and or disadvantages that need to be taken into consideration.

#### IV. THE LANGUAGE CLASSROOM CONTEXT

ICT is said to transform pedagogy, learning and teaching practices in innovative ways [56] [57]. If we are to look at the language classroom context, as an example, many factors need to be considered. Factors may range from which technology is being integrated in classroom practices, the teaching styles, the dichotomy of the student and teacher centered approaches [58], to the traditional versus the constructivist learning environments [59] [60] and paradigms (e.g. [61] [62]). For example, [63] explain that teaching practices can be categorized based on a three pedagogical approaches model (traditional/transmission, social constructivist and transformative). Out of these three, they say that the transformative approach is the one that addresses the development of key critical thinking skills, one of today's top 21st century skills needed. It is these "skills for success in today's world, such as critical thinking, problem solving, communication and collaboration" (p. 1) that need to be taught as part of the curriculum in the core subjects [64].

So, for example when integrating ICT in the language teaching context, important factors need to be addressed that range from how ICT integration is defined in such a context and how it can be used to support language teaching practices, to the links between language pedagogy and second language acquisition (SLA) theories, to the instructors perceptions and use of such theories and use within their own classroom context. There is a good deal of balancing of between disciplinary knowledge and the teaching of the teaching of different knowledges and skills in lessons [65]. Instructors need to understand their own teaching context, their own student needs, and the technology available within their own contexts that can be utilized to support the development of these needs. For example, with the new GenAI technology that stormed the academic context in November 2022, it is necessary for instructors to have new forms of literacy to be able to navigate and use such technology in their classrooms. Therefore, teaching in the language classroom in the 21st century is no longer just about teaching students how to use the language per se, it is about being able to include teaching approaches that utilize the new

technology and the new knowledge and skills within their teaching contexts.

Therefore, it is important to understand that learning is continuously evolving and that we need to consider the factors that link learning and the context within which learning is taking place. The pedagogical implication here being "to structure the learners' activities and participation so that access is available, and engagement encouraged" [66]. Integrating ICT is involving the integration of different skills and language systems within a lesson instead of focusing on specific language skills. Though recent views on ICT use in language teaching advocate an integrated approach, the literature shows that there is a focus developing discrete skills and aspects of language [67]. Which tool to use and how to use it needs to be based on 'knowledge of the unique characteristics of individual media and their relevance to the objectives to be achieved'[68]. There is also a need for 'developers and users to be more explicit in describing their goals for learning and the concomitant role of the technology leading to a beneficial focus on language learning rather than simply language use' [69]. Many teachers tend to use ICT in line with the language teaching approach they are accustomed to practicing [53] what [70] terms as an instrumental approach to technology. Teachers' perceptions of the value of ICT in teaching and learning seems to be anchored in the notion of 'affordance'. Teachers' awareness of the affordances of each tool will have implications on teachers' choice of tools in achieving language teaching objectives [71][72]. As [73] explains, "Affordances are always relative to something and, in the context of ICT", they are "relative to desirable goals or strategies for teaching and learning" (p.216). It is important to know that knowledge of the affordances of ICT need to be accompanied by an understanding of how ICT, as well as other contextual factors, contribute to a learning environment.

#### CONCLUSION

The demands of today's ever-present educational priorities mean that change is needed especially as the demand for online learning is increasing and new technologies and platforms are advancing at breakneck speeds. With such advances and

developments, innovative pedagogies that enable and support the acquisition of knowledge in today's knowledge-based societies is needed. While there is little doubt that technology can provide much of that change, whether it is inside or outside the classroom. Technology holds the potential to improve not only the student learning environment, but also the working environment of instructors and administrators. That is, technology has the potential to increase consistency, diminishes human bias and error, and deepen the connections between those who are learning and those who have an interest in improving that learning. Thus, it is technology in general, learning management systems and ICT's that are most likely to address the educational priorities of 21st century learning and teaching.

However, effective integration of such digital technologies such as those mentioned above in classroom contexts refers to technology being used not merely as an add-on tool, or a cure for all learning situations, but rather it requires instructors' principled understanding of how such technology could be used as an integral part of classroom practice and essential in realizing specific pedagogical goals and objectives. As pointed out by [74] '[r]ather than expecting technology to change the nature of teaching and learning, it may be more beneficial to help teachers use technology to enhance the curriculum in ways they see fit' (p.1323).

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