Universal Design for Mobile Learning among EFL Students in Higher Education

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Abstract— In the new era of globalization, English as the global language for communication is having a considerable impact on every field of work such as economics, business, politics, education, technology and science. However, learning English is very challenging in a non-English-speaking country like Iran where students have no chance to communicate with the native speakers of English outside the classroom. In recent years, with rapid advances in new technologies, today's students have access to the large amount of authentic materials and resources. The use of mobile technologies such as smartphones, iPads and tablets has become an integral part of everyday life for the 21st century students. However, instructors have faced many challenges regarding how to effectively and successfully benefit from the availability of students' personal technologies in their classroom. Incorporating technology into the curriculum needs an appropriate learning theory to make the education process more effective. Along with a brief review of previous studies on the benefits of technology in promoting language learning and teaching and presenting Universal Design for Learning as a framework for educational technology, this study aims to provide teachers and materials designers with the related practical implications to overcome the challenges English as a Foreign Language (EFL) students face and facilitate the effective use of mobile devices in English language education.

Index Terms— communication, English as a Foreign Language (EFL), Higher Education, interaction, mobile devices, Mobile Learning (ML), Universal Design for Learning (UDL)

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1 INTRODUCTION

The use of technology is increasingly becoming an integral part of daily life of today's young people— "digital natives", who have grown up in a digital world (Prensky, 2001). The rapid growth of new mobile technologies has influenced the development of English language teaching and learning in higher education nowadays. In today's society, students come to class equipped with plenty of personal mobile devices such as iPads, PDAs, tablet computers or smartphones. According to Prensky (2001), today's students have fundamentally changed, spending their entire lives using videogames, computer games, email, cell phones and digital music players and other technology tools. Students are constantly being bombarded with continuous streams of information from various types of media (Beyers, 2009). Mobile learning (ML) allows students to have access to the large amounts of information everywhere anytime (Ross,2013). Mobile learning (ML) is using mobile devices such as smart phone, mobile phone, Personal Digital Assistants (PDA), tablet, Laptop are used in education to facilitate learning and teaching. For integrating mobile technology into education, a shift from traditional teaching methods to student-centered approaches is needed to prepare students for learning in the 21st century (Cardullo & Wilson, 2015). However, in spite of today's world of rapid changes, teachers continue applying the existing traditional teaching methods (Oparaocha, Pokidko, Adagbon, & Sutinen, 2014; Safari, & Sahragard, 2015).

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In this regard, Lak, Soleimani and Parvaneh (2017) point out

that the traditional teacher-centered approach has been dominant in Higher Education (HE) in the Iranian education system.In this methodology, students are viewed as passive recipients of lecturers' knowledge, having no control over their own learning, and lecturers make all the decisions concerning the objectives of the course, teaching methods, materials and methods of assessment. In such a learning environment, learners are assigned to a grade level and attend class, where they meet their teachers face to face at the same time and get the same learning materials limited to what their teacher has arranged in advance, without regard to individual learner's learning requirements and demands (Kinshuk, Chang, Graf, & Yang, 2009). In Contrast, a student-centered learning approach takes into account the needs and interests of the individual learner. In this approach, learners take responsibility for their own learning, are actively engaged in the learning process and have greater input into what, how, and when they learn (Ahmed, 2013). The teacher acts as a facilitator of knowledge, co-learner, and co-investigator, and the learner plays the role of an explorer, teacher, and producer (Jones, Valdez, Nowakowski, & Rasmussen, 1994; Ahmed, 2013).

Regarding the context of Iran, all decisions and plans related to curriculum for HE institutions are dictated by the Supreme Council of Curriculum Planning (SCCP) under the Ministry of Science, Research and Technology (MSRT). Although MSRT has not made changes into curriculum, lecturers have the opportunity to implement changes into their teaching methods and materials (Tavakoli & Hasrati, 2015). A study conducted on Iranian university students' needs analysis revealed that instructors apply different syllabuses, methods and materials based on their own beliefs rather than students' real needs and preferences (Moiinvaziri, 2014). Accordingly, many studies have reported that the Iranian educational system does not take into account the unique needs of EFL students (Razmjoo, Ranjbar, & Hoomanfard, 2013; Amiri & Saberi, 2017). However,

a student-centered learning approach addressing the individual student's needs and interests should be implemented to overcome the issues and challenges of the 21st century learning. Effective integration of students' personal technology into education might facilitate a student-centered instruction for future EFL classrooms.

In addition, in a foreign language setting, students learn English with lower intrinsic motivation than students in a second language context where the language is part of their daily life and they have a higher chance to communicate with others (Koosha & Yakhabi, 2013). In such circumstances, utilizing mobile technology can provide opportunities for EFL learners to communicate with their peers and teachers. As the students are surrounded by technology, EFL teachers can take its advantage to make teaching interesting and lively, and create more real-life situation for English teaching beyond the limitations of time and space (Pun, 2014). Due to their accessibility, mobile devices allow EFL students for more opportunities to access information and language learning material anytime and anywhere.

However, in this fast-changing technological society, many instructors face the challenges of knowing how to effectively use technology in EFL classrooms to address digital native students' needs and interests. As many studies conducted on teachers' attitudes towards the integration of technology indicated that even though mobile technologies are available to EFL instructors, they do not have sufficient knowledge to successfully implement them in their classroom (Kuo, 2008; Dashtestani, 2014; Jahanban-Isfahlan, Hadidi Tamjid, & Seifoori, 2017; Teng, 2017). Therefore, the purpose of the present study is to provide guidelines for instructors how to efficiently incorporate technology into a curriculum to support student learning. This study uses Universal Design for Learning (UDL) theory as a framework to demonstrate how students' personal technologies may be used to facilitate learning English.

2 MOBILE LEARNING IN THE FOREIGN LANGUAGE CLASSROOM

Over the last few years, the rapid development of mobile technologies are attracting considerable attention of researchers in the field of teaching and learning English (Ahmad, Armarego, & Sudweeks, 2017; İlçi, 2014; Li, Lee, Wong, Yau, & Wong, 2017; Shadiev, Hwang, & Huang, 2017; Warnich & Gordon, 2015; Xu & Peng, 2017). Numerous studies attempted to investigate the effectiveness of using mobile technology in education (Eschenbrenner & Nah, 2007; Cheng, Guan, & Chau, 2016; Sung, Chang, & Liu, 2016;), and many studies have examined the effect of mobile technology on students' motivation (Rau, Gao, & Wu, 2008; Lin, Chen, & Liu, 2017; Li, Lee, Wong, Yau, & Wong, 2018), engagement (Banitt, Theis, & Van Leeuwe, 2013; Hamilton-Hankins, 2017; McDowell, 2013), and collaboration (Moreira, Ferreira, Pereira, & Durão, 2016; Sulisworo, & Santyasa, 2018; Caballé, Xhafa, & Barolli, 2010). For example, Jabbour (2013) conducted a study to investigate the effectiveness of ML in higher education institutions in Lebanon. The results showed that ML affected students' learning outcomes and their attitudes towards using mobile in class. The findings revealed that ML encourages more interactions among students as well as between the instructor and students. This finding is in line with Kilis's (2013) study, indicating that the use of mobile devices enhances students' interaction and communication. In another study conducted on the effectiveness of ML at King Saud University in Saudi Arabia by Al-Fahad (2009), the results indicated that ML could engage students in learning and provide the flexibility of access to various resources and information.

A large number of research studies also attempted to address students and teachers' perception of using their mobile technology in learning and teaching (Mundy, Kupczynski, & Kee, 2012; Lim & Yong, 2013; Tuparov, Alsabri, and Tuparova, 2015; Gasaymeh, Al-Tawel, Al-Moghrabi, & Al-Ghonmein, 2017; Moosavi, DeWitt, & Naimie, 2018; Loague, Caldwell, & Balam, 2018). For instance, Al-Emran and Shaalan (2015) investigated students and instructors' attitudes towards the use of ML regarding gender and country in the HE institutions in the Arab Gulf region. The study results indicated that 99% of the students had access to mobile devices. Moreover, results revealed that there was no significant difference among the students and instructors in their attitudes in terms of gender. The study suggested that policy makers take the suitable decision on using ML in HE institutions in this region. In another study, Saidouni and Bahloul, (2016) examined both students and teachers' attitude towards the benefits of using mobile devices inside language classroom. The results obtained from students' questionnaire revealed that the majority of students thought using their mobile technologies would be effective for learning language. The majority of students and teachers showed their readiness and motivation to utilize their mobile devices for language learning. Although teachers' responses showed that they agreed with the potential use of mobile devices to increase interaction and collaboration within the formal setting, some of the teachers had a slightly negative attitude towards applying ML in the context of their university due to the lack of internet access and large class size. This is supported by the results of another study done by Muhanna and Abu-Al-Sha'r (2009), revealing the undergraduate students had positive attitudes towards ML. However, the findings indicated that graduate students were not happy of using ML. It implies that younger people are more favorable to ML environment than older ones who are more traditional.

Many research studies have verified the effectiveness and acceptance of ML in instruction but its success depends on how appropriately and efficiently they are implemented for education. In other words, the mere availability and adoption of mobile devices do not guarantee the success of ML implementation, it is essential that teachers and students discover appropriate and effective ways to use their mobile devices in the learning. However, there is only limited research to help teachers and students decide how to use their mobile devices in the learning process successfully. To this end, the current study intends to discuss how UDL principles can be used for ML to maximize the effectiveness of instruction for HE students using their mobile devices.

3 UNIVERSAL DESIGN FOR MOBILE LEARNING

As The concept "Universal Design" is defined as the design of products and environments to suit people of all ages and abilities addressing the unique needs of every individual (Story, Mueller, & Mace, 1998). The approach Universal Design (UD), founded by architect Ronald Mace in 1985, targets all people at different ages, sizes, capabilities, talents and preferences. It aimed to design products and building structures accessible to more users especially those with disabilities. As Story, Mueller, & Mace (1998) stated that "universal design is the best way to integrate access for everyone into any effort to serve people well in any field" (p. 133).

Over the last decade, the UD principles have been integrated into education. Universal Design for Learning (UDL) provides a flexible learning condition to benefit all students. UDL principles—representation, expression, and engagement— are used as a framework to help instructors to make instruction accessible, motivating and engaging for all students with specific needs (Spencer, 2011). Therefore, UDL provides flexibility in the ways that students can access the material, demonstrate information and skills, and are engaged in the learning process.

In the last century, with the rapid growth of mobile technologies in the life of digital native students, teachers are expected to incorporate new technologies into classroom to engage today's students in learning. However, many teachers struggle with how to effectively and appropriately use technologies for instruction to meet the 21st century students' needs and expectations. Effective integration of technology into classroom using UDL principles will facilitate learning for individual students and provide opportunities for them to become expert students who can regulate their own learning and recognize their needs, strength and weaknesses (CAST, 2011, Ralabate, 2011). In other words, just using technology without a careful design will not enhance learning. According to the following three UDL principles, ML should provide multiple and flexible options for representation, expression, and engagement.

• Principle 1: Provide multiple means of representation.
• Principle 2: Provide multiple means of action and expression.
• Principle 3: Provide multiple means of engagement (CAST, 2008).

Each individual student has different abilities, preferences and needs. Teachers require to respond appropriately and flexibly to students' different abilities and needs and use a wide range of teaching strategies and resources to present information based on students' specific needs. UDL principles move away from inflexible "one-size fits all" educational paradigms which were not designed to take account of the diversity individual students (CAST, 2011). In other words, each student has the right to access the learning materials and benefit from the curriculum. Instructors in a classroom that are well equipped with UDL principles need to develop methods, materials and assessments adjusted to students' needs.

Through the first principle of UDL, HE students, especially Iranian EFL students who live in a low English-learning environment, can use their own mobile technologies to have access to a large plenty of English-learning apps and resources any-where anytime. Mobile apps refer to the term "application software" which are generally downloaded from "app stores such as App Store, Google Play, Windows Phone Store, and BlackBerry App World" run on mobile devices such as iPhones, smart phones and tablets (Gangaiamaran & Pasupathi, 2017, p.11243). Instructors can benefit using mobile apps in their teaching and provide EFL students with a broader source of authentic learning materials in multiple ways (text, audio, video, animation and pictures). However, if students are exposed to information in only one fixed format such as PDF or Word documents, using technology will not make difference. Students should have chance to gain the large amount of the information in different formats which enhance their motivation and help them regulate their own learning (Liu, & He, 2015). Integration of mobile technology should enable students to choose what, how, when and where to learn, and make decision for themselves how to assess their own learning. Therefore, teachers need to design a flexible learning environment that consider the variability of students using their own mobile technologies.

Along with development of mobile technology, teachers require to include movies, videos, PowerPoint slides, audio or picture to present the content in multiple ways based on students' needs. For example, teachers should take advantage of technology and download animations, electronic books, audio and video files, with authentic speaking of native English speakers to make learning materials more comprehensible and accessible to all students. As Kumar, Ravi, & Srivatsa (2011) point out that auditory students could benefit from auditory lectures, Podcasts, music as well as discussion, and visual students might like to use movies, diagrams, pictures, PowerPoint slide presentations and study notes. Through the first principle of UDL, technology also can be used to provide opportunities for flexibility in learning with the options in the pace, place and mode to access learning materials outside the classroom (Gordon, 2014).

According to the expression element of UDL, students should have this opportunity to show what they have learned through more than one way. By allowing multiple methods of expression, using personal mobile technology should provide students with options to express their comprehension and their knowledge in different ways, for example, allowing them to take pictures, make PowerPoint slides, record voice, take video or write an essay. Today's students should have this opportunity to make choice to express their ideas through a variety of technologies. Through the second principle of UDL, mobile technologies offer students the option that suit their preferences and abilities rather than struggling with using traditional paper-and-pencil format (Spencer, 2011). According to Morra and Reynolds (2010), in a traditional course, students write their papers on exam to demonstrate their comprehension of course materials, but it may not assess their ability and knowledge, instead it may assess their ability of writing papers.

The engagement element of UDL helps instructors create a flexible learning environment where students can use their own technologies to move from passive viewers to active crea-

tor. The focus of UDL is to make all students with special needs actively involved in their own learning.

Each student is considerably different in the ways he/she can be motivated or involved in doing classroom activities. For example, some students prefer working in pairs or groups, while others might like working on their own. To better meet the needs of individual students, it is essential for instructors to give students as wide a range of options as possible for motivation and engagement. Providing multiple options for engagement helps students connect with their abilities, strengths and interests. ML has the potential to offer an array of choices over how students access course information, express their ideas and demonstrate their knowledge. With the ever-increasing presence of mobile devices in today's student life, UDL can take advantage of the available technology to create multiple options for engaging digital native students (Dinmore, 2013). For example, instructors can overcome EFL students' linguistics restrictions through allowing students to use various mobile apps such as Whatsapp, WeChat and Skype to collaborate and communicate with one another and express themselves in English (Liu & He, 2015). These mobile apps offer students multiple options (such as sending text, voice, video, images, or documents to individuals or groups) to gain information, demonstrate their knowledge, and communicate with others.

4 CONCLUSION

In the globalized era, English, as the language for international communication, plays an important role in people's daily life. English is widely used in trading, education, media, economic relationship, technology and business. However, learning English is extremely challenging in countries like Iran where English is used as a foreign language because Iranian EFL students do not have enough opportunities for interaction with the native speakers of English outside the class (Khaksefidi, 2015). Nowadays, with the development of mobile devices, the higher education has witnessed rapid changes in teaching and learning English. Today's HE students have access to the large number of English-learning apps, learning materials and resources that they can upload into their mobile devices, and can study English at their own pace, anywhere, at any time. However, within educational environment, especially in Iran as a developing country where mobile learning is in its infancy, effective implementation of mobile devices is still a challenge. Therefore, the aim of this study was to provide insights to educators, teachers and administrators how to effectively and successfully embed mobile devices within curriculum. This study used Universal Design for Learning as an instructional framework to demonstrate how to include mobile devices to meet the needs of diverse students. Using UDL principles for ML is an effective way to create an accessible and flexible learning environment that eliminates language learning barriers in terms of time and place and meets the individual needs of all students.

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