



THE IMPLEMENTATION OF EDUCATIONAL TEXTING AS AN INSTRUCTIONAL FACILITATOR IN THE IRANIAN EFL CONTEXT

Behnam Behforouz

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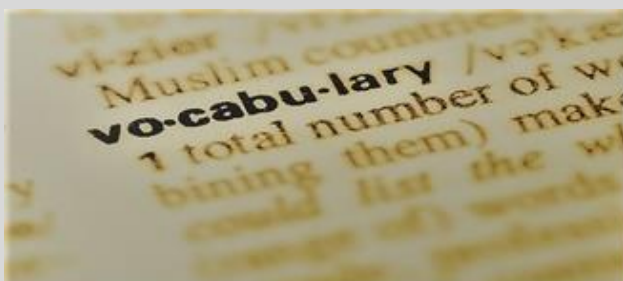
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DOCTORAL THESIS

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Statement of supervision

Dra. Anca Daniela Frumuselu, STATES that the present study entitled **The Implementation of Educational Texting as an Instructional Facilitator in the Iranian EFL Context** presented by Behnam Behforouz for the award of the degree of Doctor, has been carried out under my supervision at the Department of English and German Studies at Rovira i Virgili University.

Tarragona, 23rd April 2022

Statement of supervision

Dra. Mar Gutiérrez-Colón Plana, STATES that the present study entitled **The Implementation of Educational Texting as an Instructional Facilitator in the Iranian EFL Context** presented by Behnam Behforouz for the award of the degree of Doctor, has been carried out under my supervision at the Department of English and German Studies at Rovira i Virgili University.

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Abstract

The current teaching tendencies in the field of English as a Foreign Language (EFL) raise the need to find the optimal methods of improving EFL learners' foreign language skills. This paper investigates the implementation of educational texting as an EFL instructional instrument in various aspects of the learning process. It measures the effectiveness of text messaging on Iranian EFL learners' reading skills and vocabulary learning. Additionally, it computes the percentage of learner's autonomy after the implementation of texting; it elicits and analyzes comprehensively EFL learners' perceptions towards Mobile Assisted Language Learning (MALL), and finally, it calculates the vocabulary size and depth of the learners after being exposed to the treatment for a period of 6 weeks.

In this study, through convenience sampling, 88 participants ($N=88$) were selected from the pool of university students at Islamic Azad University, South Tehran Branch, in Iran. After the administration of an Oxford Placement Test (OPT), 74 participants ($N=74$), who got similar scores, were selected for the purpose of this study. They were randomly assigned to two groups, an experimental and a control group, including 37 students in each.

To measure learners' reading ability skills after implementing the treatment, the reading part of the Preliminary English Test (PET) was used as a pretest and later as a posttest. To calculate the amount of autonomy among learners after implementing the vocabulary items through texting, a questionnaire was distributed among the learners. In addition, a semi-structured interview session was conducted with the participants of the experimental group to further grasp their perceptions towards MALL and the usage of mobile phones in the English learning context. Finally, a Word Association Test (WAT) and a Vocabulary Level test (VLT) were delivered to the participants of both groups as pretests and posttests to compute the vocabulary size of the students and their vocabulary knowledge.

In order to carry out this study, the experimental group received 108 words via SMS during 18 sessions, including 6 words in context covered in 6 sentences. The control group, on the contrary, received the traditional type of instruction, in a face-to-face environment, with ready-made materials for the class and delivered by their regular teacher. After conducting the

aforementioned posttest, the means comparisons between the experimental and the control group were calculated. The findings of the study revealed that the performance of both groups on the basis of their reading test is similar, and the treatment did not have a statistically significant effect on the experimental group.

A second experimental study that looked into learners' autonomy carried out with the same participants and during the same period of study, revealed that the treatment played a very important role in improving learners' motivation level in the experimental group. The perceptions of the participants in the experimental group showed that students have a positive attitude towards mobile-assisted language learning in the EFL learning context. The variable of gender showed not to be a distinguishable factor for the performance of the learners in the autonomy test.

Finally, while it was revealed that learning vocabulary through SMS could significantly increase the size of the learners' vocabulary, learners' scores on the vocabulary depth did not show statistically significant differences. The outcome of the study is a valuable source of information for EFL curriculum developers and foreign language teachers and practitioners who are interested in implementing and using mobile-assisted language learning effectively in their foreign language classes.

Keywords: *text messaging, English Foreign Learning (EFL), reading skill, autonomy, perception, vocabulary breadth and depth*

Resum

Les actuals tendències docents en el camp de l'anglès com a llengua estrangera (EFL) han creat la necessitat de trobar els mètodes òptims per millorar les competències dels estudiants d'EFL. Aquest estudi ha investigat la implementació de missatges de text educatius com a instrument d'ensenyament EFL en diversos aspectes del procés d'aprenentatge. S'ha mesurat l'eficàcia de l'aprenentatge de vocabulari mitjançant missatges de text sobre les habilitats de lectura dels estudiants EFL iranians; s'ha calculat el percentatge d'autonomia de l'estudiant després de la implementació de missatges de text; s'han obtingut i analitzat de manera exhaustiva les percepcions dels estudiants d'EFL en vers l'aprenentatge de llengües assistides per mòbils (MALL) i, finalment, s'ha calculat la mida i profunditat del vocabulari dels estudiants després d'haver estat exposats al tractament durant un període de sis setmanes.

Els 88 participants inicials de l'estudi actual van ser seleccionats entre els estudiants universitaris de la Universitat Islàmica Azad, seu del sud de Teheran, a l'Iran. Després de realitzar una prova de nivell d'Oxford (OPT), es va reduir la selecció a 74 participants, els quals havien obtingut puntuacions similars per a les finalitats d'aquest estudi. Aquests es van agrupar aleatòriament en dos grups, un d'experimental i un de control, amb 37 estudiants a cadascun.

Per mesurar la capacitat lectora dels estudiants després d'implementar el tractament, es va utilitzar la part de lectura del Preliminary English Test (PET) en dues proves, una de prèvia i una a posteriori. Es va distribuir un qüestionari entre els estudiants per calcular el seu grau d'autonomia després d'implementar els elements de vocabulari mitjançant missatges de text. A més, es va dur a terme una sessió d'entrevistes semiestructurades entre els participants del grup experimental per comprendre encara més les seves percepcions envers l'aprenentatge MALL i l'ús dels telèfons mòbils en el context d'aprenentatge de l'anglès. Finalment, per calcular la quantitat del vocabulari dels estudiants i el coneixement que en tenen, es van dur a terme una prova d'associació de paraules (WAT) i una prova de nivell de vocabulari (VLT) entre els participants d'ambdós grups com a proves preliminars i a posteriori,

Per dur a terme aquest estudi experimental, el grup experimental va rebre 108 paraules per SMS durant 18 sessions, incloses 6 paraules en context englobades en 6 frases. En canvi, el grup

de control va ser instruït de manera tradicional, en un entorn presencial, amb els materials preparats de la classe i el professor. Després de dur a terme la ja esmentada prova a posteriori, es van calcular les comparacions de mitjanes entre el grup experimental i el grup de control. Els resultats de l'estudi van revelar que els dos grups van tenir un rendiment similar a la prova de lectura i el sistema utilitzat no va tenir un efecte estadísticament significatiu en el grup experimental. D'altra banda, la comparació entre les puntuacions dels dos grups en funció de la seva autonomia va evidenciar que el tractament rebut va tenir un paper molt important a l'hora d'explicar el rendiment superior dels estudiants del grup experimental. Les percepcions dels participants del grup experimental van mostrar que els estudiants tenen una actitud positiva envers l'aprenentatge d'idiomes assistit per mòbils en el context d'aprenentatge EFL. El gènere no va ser un factor determinant per al rendiment dels alumnes a la prova d'autonomia.

En conclusió, l'estudi va demostrar que el nivell de profunditat del vocabulari entre els estudiants es mantenia similar sense cap diferència estadísticament notable, tot i comprovar-se que l'aprenentatge de vocabulari mitjançant SMS pot augmentar significativament la quantitat del vocabulari dels estudiants. Els resultats de l'estudi són valuoses fonts d'informació per als desenvolupadors de currículums d'EFL i per als professors i professionals de llengües estrangeres que estiguin interessats a implementar i emprar l'aprenentatge d'idiomes assistit per mòbils de manera eficaç a les seves classes de llengües estrangeres.

Paraules clau: *missatgeria de text, aprenentatge de l'anglès com a llengua estrangera (EFL), habilitat lectora, autonomia, percepció, amplitud i profunditat del vocabulari*

Resumen

Las tendencias actuales de la enseñanza en el campo del inglés como lengua extranjera (EFL) plantean la necesidad de encontrar los métodos óptimos para mejorar las habilidades de los estudiantes de EFL en la lengua extranjera. Este estudio ha investigado la aplicación de los mensajes de texto educativos como instrumento de enseñanza del inglés como lengua extranjera en varios aspectos del proceso de aprendizaje. Se midió la eficacia del aprendizaje de vocabulario a través de los mensajes de texto en las habilidades de lectura de los estudiantes iraníes de EFL; se calculó el porcentaje de autonomía de los estudiantes después de la implementación de los mensajes de texto; se obtuvieron y analizaron exhaustivamente las percepciones de los estudiantes de EFL hacia el aprendizaje de idiomas asistido por móvil (MALL) y, finalmente, se calculó el tamaño y la profundidad del vocabulario de los estudiantes después de estar expuestos al programa durante un período de seis semanas.

Los 88 participantes iniciales del presente estudio fueron seleccionados entre los estudiantes universitarios de la Universidad Islámica Azad, sede sur de Teherán, en Irán. Tras la realización de una prueba de nivel de Oxford (OPT), se seleccionaron 74 participantes que obtuvieron puntuaciones similares para los fines de este estudio. Se les asignó aleatoriamente a dos grupos, uno experimental y otro de control, con 37 estudiantes en cada uno.

Para medir la capacidad de lectura de los alumnos después de aplicar el programa, se utilizó la parte de lectura del Preliminary English Test (PET) como prueba previa y después como prueba posterior. Para calcular el grado de autonomía de los alumnos tras la aplicación de los elementos de vocabulario mediante mensajes de texto, se distribuyó un cuestionario entre los alumnos. Además, se realizó una entrevista semiestructurada a los participantes del grupo experimental para conocer mejor sus percepciones sobre MALL y el uso de los teléfonos móviles en el contexto del aprendizaje del inglés. Por último, para calcular el nivel de vocabulario de los estudiantes y sus conocimientos de vocabulario, se realizó un test de asociación de palabras (WAT) y un test de nivel de vocabulario (VLT) entre los participantes de ambos grupos como pruebas previas y posteriores.

Para llevar a cabo este estudio experimental, el grupo en cuestión recibió 108 palabras a través de SMS durante 18 sesiones, entre las que se encontraban seis palabras en contexto incluidas en seis frases. El grupo de control, por el contrario, recibió el tipo de instrucción tradicional, en un entorno presencial, con los materiales preparados de la clase y el profesor. Tras realizar la mencionada prueba posterior, se calcularon las comparaciones de medias entre los grupos experimental y de control. Los resultados del estudio revelaron que el rendimiento de ambos grupos en base a su prueba de lectura es similar, y el tratamiento no tuvo un efecto estadísticamente significativo en el grupo experimental. Por otra parte, la comparación entre las puntuaciones de los dos grupos en función de su autonomía reveló que el tratamiento recibido desempeñó un papel muy importante para explicar el mayor rendimiento de los alumnos del grupo experimental. Las percepciones de los participantes del grupo experimental mostraron que los estudiantes tienen una actitud positiva hacia el aprendizaje de idiomas asistido por móvil en el contexto de aprendizaje de EFL. La variable del género no resultó ser un factor diferenciador del rendimiento de los alumnos en la prueba de autonomía.

Por último, si bien se reveló que el aprendizaje de vocabulario a través de SMS puede aumentar significativamente el tamaño del vocabulario de los alumnos, el estudio mostró que el nivel de profundidad del vocabulario entre los alumnos se mantuvo similar sin ninguna diferencia estadísticamente notable. Los resultados del estudio constituyen una valiosa fuente de información para los desarrolladores de planes de estudio de EFL, así como para los profesores y profesionales de lenguas extranjeras que estén interesados en implementar y utilizar eficazmente el aprendizaje de idiomas asistido por móvil en sus clases de lenguas extranjeras.

Palabras clave: *mensajes de texto, enseñanza de inglés como lengua extranjera (EFL), habilidad lectora, autonomía, percepción, amplitud y profundidad de vocabulario*

Declaration

I, Behnam Behforouz, hereby declare that this thesis is entirely my own work, carried out at Rovira i Virgili University for the Degree of Doctor in Humanistic Studies. The current thesis has not been submitted as an exercise for a degree at any other university. Where other sources of information have been used, they have been acknowledged. Some parts of this thesis have been previously published or are in the process to be published in:

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Chapter 1

Introduction

1.1. Overview

Looking back at my experience as a foreign language learner, using mobile phones faced several limitations back in the days. During the 2000s, in the area where I was studying, traditional methods of learning and teaching were implemented in schools, high schools and some universities. Using the mobile phone in the learning process had many opponents among the students and teachers, and the technological devices were limited to some high-tech universities. It is worth mentioning that teachers did not have computers and technological skills to consider the mobile phone a helpful device rather than a harmful one. The number of research articles regarding the use of mobile phone in the class, particularly SMS was very limited, and teachers did not have enough time to read about them on the websites and journals, or they did not have access to such websites due to Internet limitations. It is worth mentioning that, the Internet was restricted to some dial-up connections with very low speed, and high consumption of money, and it made the phone line busy for hours and hours. On the other hand, one more related issues existed at the time of the availability of mobile phones, and that is the parents' perception regarding its use in the classroom as an educational resource.

The mobile phone, as a communication device, was costly at the beginning, so not everyone could afford it, there was no network coverage in various small cities and villages, and the sim card was not available on the market. There had to be an enrollment at the Ministry of Communication and after the official procedures; you had permission to get your sim card from the postal office.

Parents, either at home or at school did not supply mobile phones for their children due to the negative attitudes towards the phone. They believed that mobile phones could be a point of distraction for learning and teaching rather than a useful educational tool, so the use of mobile phones as educational instruments went through a very long and complicated process of acceptance before being considered an educational tool in the areas of MALL, and M-learning.

Being a student at high school and later during my studies for under/post-graduate, using the mobile phone in the class was prohibited. Using mobile phones inside the classroom was considered illegal. Although there were some limitations and negative attitudes toward using the mobile phones, there were some teachers having high mobile tolerance inside the classroom.

However, using mobile phones in schools by students has become a controversial topic discussed by authorities, teachers, parents, and students.

Years later, as a teacher, I have noticed that the dependence of students to their mobile phones was a growing fashion, so removing this device from their lives was not a doable action. Students would use their mobile phones to take the picture of the materials inside of the class in order to read it later. The reason for that seemed to be their laziness to write the dictated and presented materials. This raised the question in my mind for the second time of how to use mobile phones effectively.

At some point later and due to the daily needs of communication without time and place restrictions, the use of the mobile phone had dramatically increased among all ages of the community. At the beginning of the smart phone, the dominance on the market, the prices were high, so many people, especially university students could not afford these phones and to use the applications and other existing options inside. Students bought a simple phone for the purpose of communication only. At that time, using the mobile phone in the classrooms was strictly prohibited. However, the mobile phones usage started to be at ease at undergraduate levels. The Internet, initially developed for the computer users, started to be functional in a few areas. Not all the cities and villages had internet coverage for mobiles. There was a clash among having a simple mobile phones, the Internet, and smart phones. This relationship is portrayed in Figure 1 below:

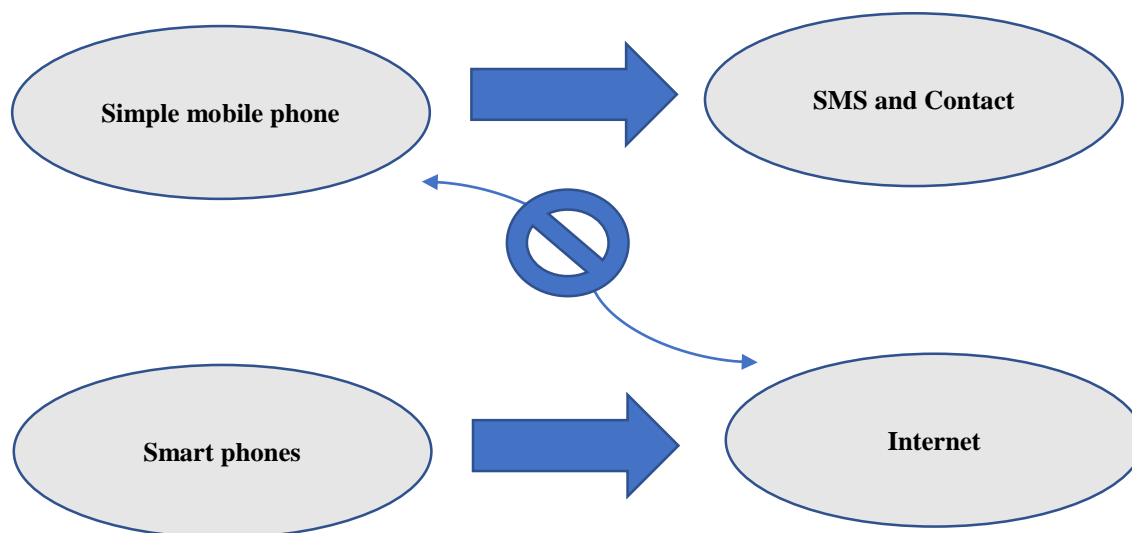


Figure 1. The relationship between smart phones, simple phones and the Internet

In Iran, primary education is compulsory and begins from the age of six for the duration of five years (Moinipour, 2021). Therefore, early education is available for all young people in my country; therefore, students in very remote areas need to have access to equal opportunities. So, due the restrictions that were discussed above, plus the lack of access to fast Internet connection and high-tech smart phones in many rural areas, it was decided to implement educational texting (SMS) as the main instrument for the development of the current research study. Accordingly, the best option to communicate in such areas was the use of SMS text messaging which was not pricey for the researcher, and it was not necessary for the students to reply, so they could save their budget while they were participating in the research. The SMS was used in this dissertation to increase vocabulary acquisition among the students and their reading comprehension skills.

In order to gain a comprehensive vision regarding the implementation of educational texting in the EFL learning context, the current study aimed at using the mobile phone as an educational tool. It was used to send vocabulary items to the students in order to measure their vocabulary size, vocabulary knowledge, to compute the learners' autonomy, to elicit the perceptions of the learners towards mobile-assisted language learning in EFL classes, and finally to calculate the effectiveness of vocabulary implementation through mobile phones and SMS on students' reading ability.

To measure the effects of the use of the SMS as an educational tool, this study employed a quasi-experimental procedure with pretests and posttests. The quantitative part of the study was carried out by using Statistical Package for the Social Sciences (SPSS), and part of the study, which carries the qualitative weight, was measured through the analysis of a semi-structured interview.

1.2. Topic Presentation

Technology plays many substantial acts in language education: it functions as productivity, resources, or as a delivery system (Serdyukov, 2017). The improvement of wireless technology has generated a new educational paradigm called mobile learning (m-learning), which includes utilizing mobile devices for educational purposes. Mobile technologies do not rely on a constant location and enable users to learn or achieve information. This helps maximize significant shifts in teaching and learning process (Moura & Carvalho, 2010).

Through using mobile applications and their ubiquitous capabilities, learners have the learning freedom and initiation to become proficient in many aspects of L2 such as listening, speaking, reading, and writing skills as well as vocabulary, grammar, and pronunciation with no boundaries (Al-Jarf, 2012; Al-Shehri, 2011; Baleghizadeh & Oladrostam, 2010; Chen, Hsieh, & Kinshuk, 2008; Warschauer, 2011; Xu, 2016). The findings of several research studies show that the use of technology in the classroom context was as effective as the old ways of learning in the class (Ghanizadeh *et al.*, 2015; Shadiev *et al.*, 2019). A great number of scholars reviewed related studies to show the effectiveness of the technology-enhanced language learning. For instance, Katemba (2021) showed that learners in the experimental group who received words through SMS text messaging performed better than the control group. It can be concluded that the use of SMS as an educational tool was found beneficial in enhancing learners' vocabulary performance. According to Warschauer (2011), mobile devices present several benefits and useful educational applications. One of the best merits of mobile learning is its flexibility. Teachers and learners can learn on the go and at their own pace. Various types of teaching methods and dynamic material can be used to great effect.

There are some advantages of mobile devices. Firstly, mobile phones motivate learners to access different information sources, process information for meaning and to communicate to express their ideas, opinions and emotional connections. Secondly, their instant-on capability and fast switching among applications give learners the opportunity of learning tasks to carry on with less postponement. Thirdly, mobile phones serve a variety of functions across low- and middle-income countries. With the technology development and mobile-data networks expansion, the capabilities of mobile phones have significantly improved from enabling communication to the provision of information and the delivery of services (Aker & Mbiti, 2010). Recently, there had been a boom in the development of app technologies, and users have access to a wide variety of low-cost and free apps that can serve an educational purpose. These apps also allow fast response to e-mail, giving users the opportunity to keep up with communication (Wallace *et al.*, 2012). Texting or calling others directly on their mobile phones, rather than paging them, has been shown to save critical time in emergency situations. As a whole, the identified advantages are flexibility, portability, access to multimedia and the ability to look up for information quickly.

According to Singhal (1997), there is a relationship between technology and English language education. Without a doubt, justifying students' needs in learning English and MALL (Mobile Assisted Language Learning) is the next stage in the educational technology improvement, indicating the digital convergence of e-learning and mobile technology in reaction to a more dynamic and active society that looks for a personalized, long-lasting universal education (Romero et al., 2010). Positive attitudes or perception towards MALL in higher education have been realized in various studies (Abadi & Saadi, 2015; Azli *et al.*, 2018; Garcia Botero *et al.*, 2018; Oz, 2015; Park, 2014; Saidouni & Bahloul, 2016; Soleimani *et al.*, 2014). As a result, MALL seems to have preserved its position in teaching and learning foreign languages, and its place may be more and more dominant in the future.

According to Gutiérrez-Colón *et al.*, (2012), mobile phones are doubtlessly an important part of the learners' lives, and so they do not consider this methodology intrusive. As their study confirms, this methodology also has positive reactions on the learners' performance. Besides, as Samsiah & Azidah (2013) state, MALL is rapidly developing since students can have access anywhere and anytime, without the educators' supervision, which may lead to more independent learners. This capability is advantageous because the experience of independence can motivate learners to keep on learning for future goals (Suneetha, 2013). They believe in the short-term pleasure of using mobile devices.

Mobile learning varies from traditional modes and provides learners with a greater opportunity to make learning portable, connected and individualized (Mac Callum *et al.*, 2014). MALL is widely used to enhance the effectiveness of various language teaching methods which integrate content and linguistic skills in parallel (Aguilar & Muñoz, 2014; Yang, 2015). Mobile learning is the most crucial issue in recent studies.

Kukulka-Hulme & Traxler (2007) stated that mobile learning could make the designing of authentic learning possible. This type of learning is advantageous for learners who cannot attend language institutions due to their jobs, chores, and various things that need time (Muhanna, 2011). Mobile technology development enabled educators to utilize a variety of technology-oriented language teaching models to promote learners' learning performance (García Botero, Questier & Zhu, 2019; Zou, Li & Li, 2018; Burston, 2015; Song & Fox, 2008). There are innovative aspects of mobile technologies and diverse mobile applications that aim to improve various skills of

learners. These applications can either be the specialized ones that were developed for the particular needs of language learners (i.e. Babbel, Duolingo, Rosetta Stone), or the more generic type of current social media applications (i.e. Facebook, Kahoot, Twitter, WhatsApp, WeChat) that can be used in integration with other conventional language learning and teaching methods. Collaborative mobile-learning can increase the quality of the learning process via evaluating learners and groups' collaboration, and it is able to help teachers make learners improve the way they work in groups. This provides different ways of evaluating learners' abilities and skills in groups as well as to integrate the collaborative e-learning with the collaborative m-learning (Atawneh *et al.*, 2020). Rodríguez *et al.* (2017) acknowledged the fact that mobile devices have multiplied the possibilities to conduct collaborative work.

Two review studies carried out by Duman *et al.* (2015) and by Shadiev *et al.* (2017) investigated the implementation of mobile-assisted language learning. Duman *et al.* (2015) found that in many studies, the significant feature was teaching vocabulary through using cell phones and personal digital assistants (PDAs). Shadiev *et al.* (2017) found dramatic growth in the reviewed studies. The most common research topics were investigating learners' perceptions towards technology and language proficiency. In these articles, English was the most commonly used target language.

1.3. Statement of the Problem

Nowadays, e-learning is considered one of the most important learning system in an educational context. However, full-implementation of this technique through 100% online schools is not applicable yet (Abu Ziden *et al.*, 2017). West (2013) stated that one of the sorrowful issues of such learning is the lack of students' accessibility to personal computers and the Internet. He also stated that another problem of schools dealing with e-learning is the high price of hardware, which stops the schools from supplying an adequate number of computers for each learner. Studies have shown that learners can depend on themselves to explore the mobile materials they have, and they can develop the habit of independent learning. For example, Attewell (2005) conducted a three-year study on the impact of m-learning on learners' learning patterns and attitudes towards information and communication technologies (ICTs) and found that m-learning motivated both independent and collaborative learning experiences and raised learners' autonomy.

In EFL contexts, word meaning or vocabulary knowledge, is one of the main aspects to comprehend a paragraph or statements, so without understanding the words, the learners would not be able to understand or comprehend the text. One way learners improve vocabulary is indirectly through reading, listening, and speaking. Learners' background knowledge and their prior experiences play an important role in vocabulary improvement. As learners connect the known words and unknown words, they develop a more profound understanding of their reading. Some educators like Holec (1981), and Benson (2003) put great emphasis on the necessity of autonomy in education. They stated that those learners that think and work strategically are more motivated to learn and have a higher sense of self-efficacy or confidence in their own learning ability. Accordingly, those learners who depend on themselves in learning vocabulary are more capable to succeed academically and more motivated than those who do not have effective strategies in learning by themselves.

There are many technologies available for online instruction but sometimes they create great numbers of problems. These problems are related to the modern technology ranging from downloading errors, login problems, issues dealing with installation, and problems with audio and video, etc. Sometimes learners find online education to be unattractive and unengaging (Dhawan, 2020). Despite considering the dominance of technology in learning and its positive effects, in the researcher's country, there are concerns of using and applying it in poor or far areas, where there is no Internet connection, not enough budgets to supply high internet-based technologies for schools and students. As a result, in these situations, mobile phones can be the best solution. Brion (2019) showed that the use of mobile technology helped peer learning, improved participants' motivation, reminded them of the training content and gave them the opportunity to network.

Using phones or any other type of similar tools can affect the learning process. It can be an academic such as language learning context or non-academic context (Kukulka-Hulme, 2009). Since mobile phones are free from time and place restrictions, it will affect the teaching and learning processes effectively and positively (Moura & Carvalho, 2010). Various studies approve mobile phones' applicability in plenty of research areas, especially in education (Moura & Carvalho, 2010; Kukulka-Hulme, 2009; Kukulka-Hulme & Traxler, 2005; Faux *et al.*, 2006; Sharples, 2006).

Using mobile phones in the learning process is cost-effective; and concurrently, it allows the education to extend to all places; and students, especially those living in very distant, poor, or less equipped areas, can take advantage of it for learning. Some research studies show that mobile phones can have more positive rather than negative feedback on learners (Beland & Murphy, 2016; Brion, 2019; Crompton & Burke, 2015; Fabian *et al.*, 2018; Gürkan, 2018; Pollara & Broussard, 2011). Mobile learning (m-learning) is mostly considered as a kind of learning method in which mobile platforms are used in learning process. It combines all the qualities related to computer network technology, mobile communications technology, multimedia technology, and modern education (Rezaei *et al.*, 2014).

Talking about the mobile phone, the first idea that may come to the reader's mind is a smartphone that can be connected to high-speed Internet connection, which provides a cyber-learning environment for the students to learn and for the teacher to teach their material. Still, it is not the case in all the educational contexts. As mentioned earlier, some unseen factors may limit the functions of the smartphone in education.

The other issue, which was mentioned earlier, is the network connection and then the speed of the Internet. Education is not for a group of people with average or high economic levels of wealth, but it belongs to all the students from big cities to very distant and remote villages. In this case, although there is no Internet coverage in all the areas, mobile network coverage is still fair, so using a mobile phone without online applications can be considered functional. To overcome all these problems and get closer to the purpose of this study, Short Message Service (SMS) was used as an instrument to deliver the content for the current study. According to Jambulingam (2013), SMS has the feature of affordability, which motivates the users to employ it more than any other applications.

Yengin *et al.* (2010) stated that rather than implementing the learning labs and various educational applications, SMS deployment enables the officials to send a message to plenty of students. SMS is considered as being a two-way communication tool from teachers to students, students to students, and students to teacher, and it can be sent from either a mobile phone to mobile phone, mobile phone to a computer, and computer to a mobile phone. The SMS is a type of educational tool that is user-friendly, cost-effective, and has a high-speed delivery.

1.4. Purpose of the Study

It is observed that texting is the primary way of communication among the students; hence, there is scarce evidence of various research studies that measure the effect of instructional texting on the educational environment, learners' achievements, and sense of connectedness (Sell, 2018; Kinash *et al.*, 2012; Gikas & Grant, 2013, Gingerich & Lineweaver, 2013; Geng, 2013; Quinn & Oldmeadow, 2013).

Using this feature to communicate went viral all over the world, particularly in developing countries. Some researchers (Lomine *et al.*, 2009; Traxler, 2005; Kukulska-Hulme & Shield, 2008; Goh & Hooper, 2007) stated that the SMS could be considered as a very suitable and popular instructional device in the field of education. Initially, the SMS technology included sending and receiving 160 characters, but recently it has been increased to 612 characters per message. These days, several educational institutions started implementing mobile devices as a supporter of learning and teaching (Oliveira, 2021). Although mobile devices were not designed to be functional in the academic context, their educational usage follows rapid growth as mobile-learning (Behforouz & Frumuselu, 2021; Gerpott & Thomas, 2014). Sending SMS is considered one of the most important potentials of deploying mobile learning in an academic context. This will cover one of the essentialities of society during the digital era (Criollo-C *et al.*, 2021).

Using SMS in education can be considered a support, which helps to learn free from the time and location limitation (Kinshunk, 2003). The SMS as a learning medium can be implemented in two different learning models. The first one is a push model (Yengin, 2011) in which the teacher is the decision-maker regarding the content and time of the message, and students cannot reply back to the message. In this model, communication is a one-way method, and it included the motivational and preparatory parts of a lesson plan. On the contrary, the pull model will allow the students to follow a two-way communication system, in which they can send and receive the reply and feedback. According to TxtTools (2011), other activities such as fill in the blank, true & false, and multiple-choices are also applicable in education through SMS.

Qian (2002) states that the vocabulary breadth and depth, deserve equal consideration for examining the vital part vocabulary knowledge has in reading comprehension. Stæhr (2009) argues

that studies related to vocabulary knowledge and language skills have entirely focused on reading comprehension in English. Indeed, studies in English language teaching (ELT) and English Language Learning (ELL) have mostly underestimated the language vocabulary resources. Therefore, an empirical, and careful inquiry is required for comprehensively exploring the important role vocabulary knowledge plays in second language (L2) proficiency.

Considering the aforementioned advantages of m-learning in education, problems dealing with online applications and the presence of great opportunities through sending SMSs, this study aims to investigate the effectiveness of implementing instructional SMSs in the EFL learning environment, to compute the vocabulary depth and breadth of students via SMS, to achieve the percentage of learning autonomy among students who received the SMS as a treatment and to elicit learners' perceptions regarding the use of SMS and mobile learning in EFL contexts. Unlike the existing literature, this study aims at measuring the relationship between vocabulary learning through the mobile phone and the ability to understand the reading texts at the pre-intermediate level. Thus, it can be stated that this research is a comprehensive study, which measures the academic performance of students as well as their existing cognitive level.

1.5. Research Questions and Hypotheses

Based on the aforementioned statements and the aims of the current research study, the following research questions have been formulated:

- RQ1: Does educational SMS has any effect on Iranian EFL learners` reading abilities to comprehend pre-intermediate level texts?
- RQ2: Are learners more autonomous in their learning after using text messaging as an instructional tool and is gender an important variable in learner`s autonomy after employing text messages on a regular basis?
- RQ3: Is there any statistically distinguishable discrepancy between the vocabulary depth scores of the control and experimental groups?
- RQ4: Is there any statistically remarkable difference between the vocabulary breadth scores of the control and experimental groups? Are learners increasing their vocabulary breadth scores after being exposed to the treatment?

- RQ5: How do learners perceive the use of MALL in the EFL learning context?

In light of the above research questions and the literature review related to the current topic, the following hypotheses have been formulated:

- HO1: Instructional SMSs do not significantly affect Iranian EFL learners' reading abilities to understand pre-intermediate level texts.
- HO2: Learner's autonomy might be promoted based on the implementation of educational SMSs, and gender might not be a determining factor in the term of autonomy difference.
- HO3: There will be no statistically significant differences between the vocabulary depth of the students in both experimental and control groups.
- HO4: There will be positive relationship among the increase of vocabulary size of the students and their scores in experimental group.

1.6. Summary of the Research Studies

In order to answer the aforementioned questions, three studies have been designed, conducted, and the following paragraphs are summarizing the main findings:

The first article (Behforouz & Frumuselu, 2021) tried to investigate the role of SMS in vocabulary learning and Iranian EFL learners' reading abilities. The pre-intermediate students were randomly divided into two groups: an experimental and a control one, 37 participants in each group. According to the Oxford Placement Test (OPT), these students were homogenously divided in two groups, based on their English language proficiency level, and they were considered pre-intermediate EFL learners. Students from the experimental group received 106 SMSs, including new vocabulary items in context sentences to introduce the word's functions. In contrast, the control group followed the traditional face-to-face type of instruction and did not receive any SMSs, following the same course book. It should be mentioned that both groups studied the same amount of words. A pretest (reading section of PET) was conducted to measure participants' reading abilities in both groups before the treatment, and the findings revealed that the two groups showed similar proficiency level in terms of their reading skills. At the end of the study, a posttest was conducted to compute the impact of the treatment. After analyzing the required data through

the SPSS (Statistical Package for Social sciences) software, it was found that vocabulary implementation through instructional SMSs did not significantly affect the Iranian EFL learner`s reading abilities.

In the second study of this dissertation, Behforouz & Frumuselu (2020) attempted to measure learner's autonomy after receiving treatment and elicit the experimental group's perceptions of mobile-assisted language learning (MALL). Similarly, as in the first study, 74 Iranian EFL learners who were randomly divided into experimental and control groups with 37 students in each group, were the population of this study. According to the Oxford Placement Test (OPT), all the study participants were determined to be at the pre-intermediate level. Learner's autonomy was calculated twice based on the questionnaire designed by Zhang and Li (2004), once as a pretest, and once after the treatment as a posttest. The study results revealed that the participants of the experimental group who received the treatment for the whole educational semester outperformed their counterparts in the control group based on the autonomy. To elicit learners' attitudes regarding the deployment of MALL on EFL learners, a semi-structured interview with researcher-made questions was conducted, and learners showed great satisfaction regarding m-learning and its functionality in foreign language classes. This study also showed that gender discrimination could not influence performance differences between both groups, and this is similar to what Lachane & Mazzocco (2006) reported stating that autonomous learning is gender-friendly, so there was no significant difference between male and female learners.

The last study of the dissertation (Behforouz & Frumuselu, 2021) aimed at investigating the size of learner's vocabulary, the so-called vocabulary breadth, and the vocabulary depth or vocabulary knowledge of the participants in the experimental and the control group. Similar to the two previous studies, the same group of students and different data were analyzed. In this study, a Word Association Test (WAT) by Read (2004) and a Vocabulary Level test (VLT) by Schmitt, Schmitt, & Claphama (2010) were used as pretests and posttests. The comparison of the tests within the participants of the experimental group revealed that the vocabulary depth of the students did not change significantly in the presence of the treatment, while the vocabulary size of students increased dramatically in the posttest after receiving the treatment. To further analyze this aspect, a comparison was made between the scores of the experimental and the control group. The results showed almost similar results, i.e., both groups' vocabulary depth remained the same, which shows

no significant effect of the treatment on the experimental group. In contrast, the comparison of vocabulary breadth shows a very high impact of the treatment on the experimental group, which justifies their better performance in comparison with the participants in the control group.

1.7. Research Structure

Chapter 2 provides some of the closely related theoretical frameworks related to mobile-assisted language learning. To this end, the following theories will be described and linked to the present study, highlighting the main aspects that support the use of mobile learning and SMS as educational tools in the EFL classroom. The theories that back up the use of mobile learning and SMS in educational contexts are the Dual Coding Theory, the Cognitive Load Theory, the Activity Theory, and the Communities of Practice theory.

Chapter 3 is devoted to the methodology of the dissertation. This chapter presents the methods employed to design and collect the data for the present study and describes the specificities of the participants of the study in order to reach the main aims of the current doctoral investigation.

Chapter 4 is dedicated to the detailed explanation of the three experimental studies that have been carried out during the academic semester of 2019-2020. These studies have been published accordingly and the full citation and the summary of the biographical data are provided at the beginning of each article.

Chapter 5 presents the overall conclusion, summarizes the purpose of the study, and compares the findings of the three aforementioned papers with the existing literature in these areas, the limitations that the researcher encountered, and finally, the implications for further research.

Chapter 2

Theoretical Background

The current chapter presents some of the theoretical approaches related to the implementation of m-learning, MALL and message-based learning. The idea of MALL has pervaded through the people for its mobility in gaining information and knowledge across time and space. Having known the great numbers of technological language-learning options available, researchers put emphasis on creating a learning environment, which focuses on learners, concerning pedagogy that drives learning to occur before deciding on the use of mobile technologies for instructional objectives (Leow *et al.*, 2014). The integration of mobile devices to support language practice and facilitate language learning has also been extensively investigated. Some studies have found that mobile phones and tablets, when used appropriately, may assist students in improving academic achievement (Huang, Lin & Cheng, 2010; Ivić & Jakopc, 2017; Lu & Yang, 2018).

For the purpose of this study, four theories which are related to mobile-assisted language learning were investigated, and then the logical connection between each theory and this dissertation was created accordingly. These theories are as follows: The Dual Coding Theory (DCT), Cognitive Load Theory, Activity theory and finally, Communities of Practice.

2.1. Dual Coding Theory

Dual Coding Theory (DCT) was developed by Allan Pavio in 1971 at University of Western Ontario. This theory of cognition, (Paivio, 1971; Sadoski & Paivio, 2004) which was considered later as the basis theory of multimedia language theory, (Williams, 2013) states that during the process of information decoding by a person, two processing systems are working. One of them is the verbal one and the other one is non-verbal, including the visual, the kinesthetic, and the auditory. Words from the printed sources, sound of the speech, Braille feedback from writing are all under the category of the verbal system. On the other hand, the non-verbal system involves the object, pictures, the sounds from the environment, and feedback from the objects (Pavio & Begg, cited in Williams, 2013). Zhan and Cheng (2014) state that the common viewpoints are that the usage of the two systems at the same time to decode the information will facilitate learning and retaining the information. Although the first version of this theory is dealing with verbal and non-verbal systems, but later on it has been implemented in various areas such as reading (Sadoski &

Pavaio, 1994; Sadoski *et al.*, 1991), writing composition (Sadoski, 1992), and a final version which is covering both reading and writing (Sadoski & Pavio, 2001).

Mishou (2017) states that according to DCT, the information, which is initially perceived visually and verbally to the brain, will be separated and represented through various special channels. Later, through what is called mental codes, such representations will be organized, stored or retrieved. These mental codes are divided into two types, namely visual and verbal (Sadoski *et al.* 1991) which can work independently, either in parallel or in an integrative mode. This means that if somebody wants to remember a word, then he has three possible options to facilitate the recall process. The first option is to envisage the word, the second option is to recall the word, and the third option is to recall the word and image together concurrently. It is believed that the visual and verbal simultaneous decoding of the information results in easier and more convenient opportunities to recall the term or the word.

In other studies, dual coding theory is portrayed as the cognitive system of the human divided into two terms which are the so-called logogens and imagens. The logogens are dealing with the language part of the system, while the imagens include the tangible objects. According to the scholars, Clark & Paivio (1991) and Sadoski *et al.* (1991) invigorating and then developing these two systems will be facilitating a better cognition. Clark & Paivio (1991) reported a very high percentage of retention of the words which were associated with their related pictures.

The principles of the Dual Coding Theory are applicable in the vocabulary learning process in language teaching and acquisition processes. Nowadays, two different strategies of vocabulary learning were identified in this theory: learning incidentally from the text; and learning directly from the instructions. The DCT states that the usage of words in variety of contexts is causative for better connection of verbal and non-verbal cues. These contexts are speaking, listening, writing and reading (Sadoski, 2005), claiming that the number of empirical studies regarding vocabulary learning from writing, speaking and listening is not adequate (Stahl *et al.*, 1991) while plenty of studies were developed on the basis of vocabulary learning through reading (for example, Swanborn & de Glopper, 1999). This is achievable by considering the grade level, partial and full knowledge of the learning during the process. The implementation of both vocabulary learning strategies, direct instructional and incidental learning will result in better retention of the words

later on (Baumann, Kame'enui, & Ash, 2003; Beck and McKeown, 1991; Blachowicz & Fisher, 2000; Stahl & Fairbanks, 1986; White *et al.*, 1989).

In another study, Lambert *et al.* (1981) stated that language learners performed better during the study when there was assimilation of oral and written texts together in audiovisual materials, so they concluded that it is more beneficial to receive information from two sources at the same time rather than receiving it in separate channels. Furthermore, Talaván (2012 cited in Frumuselu, 2015) considered the role of translation in the cognitive connection as one of the other complementary learning factors.

The SMSs provide the chance for students to have access to the written form of the vocabulary, which was merged inside the sentences, and a single word translation for the word was provided in L1 without any time and place restrictions, as well as, the direct class instruction. As it was mentioned in previous studies, the implementation of both strategies shall provide better learning opportunities for the students.

2.2. Cognitive Load Theory

The cognitive load theory was initially stated in 1980s, but it was developed during the 1990s. The purpose of this theory is to design a framework which explains the cognitive processes and instructional design. The main focus of this approach is that sometimes the memory will be occupied with extra and unnecessary loads during the instruction (Sweller *et al.*, 1998), thus, during the preparation and design of the educational materials, the relation between the working memory (short-term) and long-term memory must be the concern (OuYang *et al.*, 2010). Sweller (1988) states that that the perfect outcome during the learning process happens when the working memory is receiving the light load and this would facilitate the function of the materials in long-term memory. He also mentions that during the learning process, learners go through three stages. The primary stage of the process in the sensory motor or what is called the entry point that is temporary and deals with the senses. The data processor or working memory is the second stage. This memory is limited but conscious. In addition, the last stage of the learning process is called the long-term memory or repository. This type of memory is unlimited, insentient, and tenacious.

The working memory can deal with a small amount of the information and can be occupied easily by three different types of cognitive loads including extraneous, intrinsic and germane (Paas

et al., 2003; Sweller *et al.*, 1998). Some researcher such as Paas & VanMerriënboer (1994) state that the learning environment and background of the student could be considered as sources of such cognitive load. In addition, some other scholars like Sweller (1988), and Kalayuga (2009) believed that the difficulties that learners are dealing with during the process results from the increase of cognitive load. As it was mentioned earlier, cognitive loads are divided into three types that will be explained as follows:

- The intrinsic cognitive load considers the immanent structure of the educational materials as well as their complications. This load is increasing in the existence of elements that are interacting together. Such elements depend on the number of various kinds of information that the learners should combine and captivate concurrently. This type of cognitive load interacts with the amount of information that the working memory has to deal with simultaneously (Chu, 2014).
- The extraneous or ineffective cognitive load considers the percentage of the impact of task on the learning. This load is dealing with the very weak design of educational strategies, which ignores the adequate educational variables during the learning process. Whenever the design of instructional materials is poor, then the learning task will be hard, accordingly (Chu, 2014).
- The last type of cognitive load in this theory is called germane or effective cognitive load. This type of load is dealing with the type of educational design, which considers the essential learning variables, and it results in learning facilitation. Sweller *et al.* (1998) states that the function of the germane load is to make a distinction between the helpful and those materials which are related to the learning process in the working memory with the other types of information that are irrelevant and occupy the memory unnecessarily. Thus, it can be stated that the germane load works as a tool to improve the motivation or performance of the learners through the reduction of extraneous cognitive load. Thus, this type of cognitive load needs to be implemented effectively in instructional activities (Kalyuga, 2009; Chu, 2014).

Thus, if the capacity of the cognitive load that is occupied by the type of the instructional materials and the format of their presentation is managed perfectly, then it can be expected that the learning will be effective (Chu, 2014). Paas *et al.* (1994) states the three aforementioned types of

cognitive loads, in fact, could be divided into two formats including ‘mental load’ and ‘mental effort’. They justified that extraneous and germane cognitive load are located at the two extremes of designing the instructional methodologies. So, in this case, the mental load deals with the interactive feature of the task, the characteristics of the subject and finally, the instructional materials. This kind of load deals with the task and contextual dictations. This type of load, which is based on the tasks, can be the representative of intrinsic cognitive load. On the other side, the mental effort is dealing with the amount of necessary resources which is in need of completing the task, and its main features are its human-centered character. The mental effort emphasizes on the amount of the instructional materials that a learner is engaged in and it can be affected by the design of instructional techniques, and this is the representative of extraneous and germane cognitive loads (Paas et al., 1994; Zheng, 2009).

While cognitive load theory was applicable in various traditional education and technology-enhanced learning (Chang *et al.*, 2011; Hollender *et al.*, 2010; Hung *et al.*, 2010; Liu *et al.*, 2012), the popularity of mobile devices can be a good point to investigate the cognitive load theory in contexts where the learning is facilitated through mobile technologies (Chu, 2014).

If the students are exposed to various audio, visual and textual learning channels, then the load of the working memory will be reduced (Frumuselu, 2015). This dissertation is also backed up by the theory of cognitive load. The researcher of this study tried to develop the visual technique, which is the use of the SMS in this study, to reduce the pressure of student’s working memory for better learning. The vocabulary items that students receive will give less pressure and load to the working memory, and consequently, the information could be stored easier in the long-term memory.

2.3. Activity Theory

The origin of the Activity Theory was in the former Soviet Union by Vygotsky (1978) and Leont`ev (1978). The main emphasis of this theory is on the relationship between human activities and the work practices. The existing concepts and the principles of this theory have been implemented in various fields of study such as the interactivity between human and the computer (Kuutti, 1996), the information systems (Bodker, 1991) and education (Engestrom, 1987).

The term `Activity` in this theory is considered to have three elements including a subject, an object and a tool which is functioning as the mediating instrument. Depending on the context, the subject can be either a person as individual or a group of people who are engaging in an activity. In this theory, the relations of the elements are as follow: the subject accepts the responsibility of doing an activity, using the mediating instrument to achieve the goal, so the way is from input to outcome (Kuutti, 1996). The concept of the tool in this theory can be a physical object or a psychological one such as language, culture, etc. (Uden, 2007). Kaptelinin (1996) states that computers could be considered as particular mediating instruments of this theory. The object in this theory can have three conditions: it can be something materialistic, less tactile or intangible (Kuutti, 1996).

In the Activity Theory, some technical terms are important to be considered. The term *community* includes an individual or groups of people sharing the same goal with the subject. The second term, *rules*, deal with the regulation of interactions within completing an activity. *Division of the labors*, as the third term, is focusing on the distribution of the tasks, power, or status among the members of the group (Uden, 2007). The implementation of the Activity Theory is beneficial to design and understand the m-learning context better (Engeström, 1987; Lave & Wenger, 2002).

Russel (2002) states that the use of full name first and in brackets the acronym ZPD initiates when the relation or interaction between the students and teachers is facilitated by some mobile technologies. Learning cannot be considered as a very organized system of information transfer but rather an untidy system, which exists within the relation of human and tool-mediated stuff and needs more investigation based on the socio-cultural factors of that special learning context. This aforementioned socio-cultural term in activity theory states that the context of learning should be further investigated (Bødker & Petersen, 2000).

The collaboration of the application is considered another advantage of implementing the Activity Theory in mobile learning. In Activity Theory, some technologies such as computers and mobile devices are mediators of the learning. Unlike the traditional statements by the cognitive science regarding the relationship of human and computers based on the similar language and techniques, the Activity Theory presents a type of irregular interaction between the people and things. This theory locates the computers, which can be considered that mobile learning is the mediator of people activities (Bodker & Peterson, 2000).

The current dissertation uses the mobile phone as the mediator of learning among Iranian EFL students. Using the mobile device and its features like the SMS are the techniques which were implemented to improve or facilitate the learning process, especially vocabulary learning. So, it can be concluded that the activity theory, its principles and features are fully implemented in this study. This study is also beneficial to work on ZPD as the relation of the students and the teacher in the learning process mediated through the mobile phone.

2.4. Communities of Practice

Community of Practice (CoP) originated by Etienne and Lave (Lave & Wenger, 1991) states that learning is a type of social process, not an individual one that happens in cultural and historical contexts. This socio-cultural model of learning states that learning is happening as the result of interaction among the people within the environment, sharing and discussing the meaning through participating in the communities and finally, embodying the available resources such as existing instruments as the main focus of the activities (Takashi, 2011). The Community of Practice has three features (Wenger & Trayner, 2015):

- **The domain:** The main feature of the Community of Practice is the common interests which are sharing within a group of people which distinguishes and separates the members of various networks from each other (you might belong to a specific group of people without being aware of it). The Community of the Practice is not only a group of friends or other means, which connect the people. For example, a group of young people may implement all the existing strategies within their community like the ways that make them to survive in the society. Although outside of this domain, few people may or may not pay attention to the desires of the group, they are still working and learning together.
- **The community:** to work and learn from each other, the members of the community try to share some data, be helpful to each other and engage themselves in various activities and discussion sessions. The community prepares the interactions that are useful in order to learn from each other, and they focus on the support of each other. For example, a website cannot be considered a community of practice. Unless the members of a community work together and learn from each other, similar jobs or titles cannot make a community of

practice. It is worth mentioning here that the members of a community are not essentially working together regularly. Consider artists as an example, who are meeting their co-workers to discuss the various styles and methods that they invented already in the art. Such sharing the ideas and the relations make a community of practice while they might be working alone.

- The practice: The members of the Community of Practice are in fact the practitioners. The term *practice* does not refer to a group of people who have common interests among each other like they are all interested in a special type of movie. As an example of the practice, for instance, although having a discussion with another person inside of the plane can be fun and entertaining, but it cannot be considered community of the practice. The process of developing a shared practice in the community of the practice theory is related to the degree of self-consciousness.

Donaghue *et al.* (2013) states that community of practice can motivate and support the teachers to think of the learning challenges and problems and reflect on such issues and experiences with other peers, and also to think about using iPads in the teaching and learning processes. To consider the professional learning procedures, the community of practice has three main steps: a unit objective which assists the instructors to use iPads in learning and teaching contexts, the engagement, similar to the regular meetings of the teachers, and finally; a common repository to share the knowledge, experience and the objectives. The existing literature on the community of practice has revealed that the instructors are interested in implementing new knowledge on the learning and teaching processes after sharing their ideas, experiences and cooperating with the other colleagues (DuFour, 2004; Graham, 2007; Shank, 2006; Smith & Sutherland, 2003).

It can be mentioned that the current dissertation has partially integrated some principles of the community of practice theory by using mobile learning. Using SMS and mobile phones to measure the autonomy, and students' vocabulary breadth and depth knowledge can give more opportunities for the teachers who are engaging themselves in the same area of education, and this refers to the community side of the story. This study elicited the perceptions of the students regarding the implementation of MALL in English language teaching and this is the sharing aspect of the community of practice theory. One of the most important features of this theory is employing

the existing and available resources as a practice for learning and teaching based on the socio-cultural factors, thus, the current dissertation, based on the socio-cultural restrictions, implemented the mobile phone and the SMS as learning tools.

Chapter 3

Methodology

This section will present the methods used to design and collect the data for the current research study and will detail the specificities of the participants of the study in order to reach the main aims of the current doctoral investigation. However, in chapter four, the methodology employed for the development of each research study will be presented in detail.

3.1. Participants

The initial population of this dissertation includes university students ($N=88$) from various fields of study including Chemistry, Civil Engineering, Computer Science, and Electrical Engineering. The students, who were studying General English at Islamic Azad University of South Tehran Branch, voluntarily participated in this study. The participants' age range is between 21 to 26 years old, with a mean of ($M=23$). They are all Persian native speakers. These students have not taken any English courses before; however, there are some basic courses of English from secondary to pre-university levels in Iran. Taking the current course, General English, is instructed and obligatory by the university.

After conducting an Oxford Placement Test (OPT) to homogenize the groups, 74 participants were selected as the final population of the study. In order to carry out the three research studies for the current doctoral investigation, students were divided into two groups: a control and an experimental group, with equal division of 37 participants in each. Out of the entire pool of participants, around 65% ($N=48$) were females and 35% ($N=26$) were males.

3.2. Instruments

In this study, the following instruments were used to collect the required data:

3.2.1. Oxford Placement Test (OPT)

An Oxford Placement Test (OPT) was administered in order to measure participants' overall ability to communicate in English. This test includes 60 items divided into two parts: part one focuses on grammar and the second part focuses on reading and vocabulary.

In order to assess and identify participants' English language proficiency level and to ensure their homogeneity, they were required to take the standard OPT. This test was used in this study since it is easy to administrate, culturally accepted based on produced Ph.D. theses and articles in Iran, and it is well-known among academicians. The OPT is a quick way of assessing the approximate level of a learners' knowledge of English grammar and usage. The allocated time to complete the test was 55 minutes. This test consists of two parts with 60 multiple-choice items and cloze tests. The first part consists of 40 questions and the second part consists of 20 questions. Participants were required to read the items and then choose the correct answers among the choices. See **Appendix A** for the OPT version used for the current study.

The OPT is often used by researchers as the language proficiency test in which participants' scores according to the test norms are ranked in 6 levels from beginners to advanced levels. Table 1 below shows the OPT ranking.

Table 1. *Oxford Placement Test Ranking*

Beginners	Elementary	Lower-Intermediate	Upper-Intermediate	Advanced	Very Advanced
1-17	18-27	28-36	37-47	48-55	56-60

3.2.2. Preliminary English Test (PET)

In order to assess participants' prior knowledge in reading comprehension, the reading part of the Preliminary English Test (PET) was administered as the pretest before starting the treatment process, and at the end of the study to assess the effectiveness of the treatment and learners' achievement. The test consists of 35 items and it includes 5 parts as follows:

- *Part 1: Three-Option Multiple Choices:* This part includes five very short texts which may be signs and messages, postcards, notes, emails, labels, etc. Participants have to read them and understand the main idea, and then choose which of the three sentences (A, B or C) is the best. This part contains 5 questions and 1 point is given for each correct answer.

- *Part 2: Matching:* This part of the test consists of five short descriptions of people and eight short texts to read. Participants have to find specific information and then match each person to a text. This part has 5 questions and each correct answer gets 1 point.
- *Part 3: True/False:* This part consists of a long text and 10 sentences about the text. Learners have to read the text quickly to find out information and say if each sentence is true or false. This part includes 10 questions and 1 point for each correct answer is given.
- *Part 4: Four Option Multiple Choices:* In this part, participants need to read a long text and five questions. They have to read the text, understand the detail of the text, and choose the right answer (A, B, C or D) for each of the five questions. This part has 5 questions and 1 point is given for each correct answer.
- *Part 5: Multiple-Choice Cloze:* This part contains a short text with 10 numbered spaces. Each space represents a missing word and learners need to understand the vocabulary and grammar items and have to choose the right answer from a choice of four (A, B, C or D). It includes 10 questions and 1 point is given for each correct answer. See **Appendix B** for the PET version used for the current study.

3.2.3. General English Book

Due to the internal policy of the institution where the study was conducted, the General English Book: A task-based approach written by Daftarifard & Bagherpour (2018) had to be used as the course book for this reading comprehension course. The participants of the study including the control group and the experimental one had access to this book; however, the experimental group received short messages which included parts the vocabulary present in the course book. This book contains nine lessons with color photos and tables and the focus is on reading comprehension. Only the first five lessons were taught during this semester. Each lesson covers different types of reading strategies such as guessing, scanning, skimming, reading a table, summarizing a text, etc.

3.2.4. Educational Short Message System

Due to the network limitations and pricey equipment, the researcher decided to use SMS text messaging to send the vocabulary content. Since the focus of this study was on using mobile phone

technology to improve learners' reading comprehension and vocabulary acquisition, this tool was used by the students in the experimental group to receive SMSs as a treatment. 108 words were sent in total during six weeks of treatment. The sent vocabulary items and examples were as short as possible so that the students could easily read the messages on their small screens. Only 6 words were sent per message. The vocabulary items were presented by their Persian definition and sample sentences. The delivery reports of the mobile phones were controlled in order to remove the possible failure of the system. See **Appendix C** for the sample short messages used for the current study.

3.2.5. Autonomy Questionnaire

Participants' autonomy was measured with the 21-item questionnaire designed by Zhang & Li (2004). As to the internal reliability of the questionnaire that Zhang and Li calculated, Cronbach alpha was used and this turned out to be 0.89. The questionnaire has proved to have high content validity and high reliability. This questionnaire consists of two parts, one part has 11 items through a 5-point Likert scale which is coded as (A. never; B. rarely; C. sometimes; D. often; E. always) and the remaining 10 items form the second part. The second part of the questionnaire is in a multiple-choice format. To change the participants' selections to numerical data, the options A, B, C, D and E are marked one, two, three, four and five, respectively. The total score turned out to be 105. The participants were asked to respond to each item by choosing one of the five choices following each item. The standard time allocated to this test is 40 minutes, but participants answered it in 15 minutes. The autonomy questionnaire was administered twice, as a pretest and a posttest, to find out the differences between learners' autonomy before and after the treatment. See **Appendix D** for the autonomy questionnaire version used for the current study.

3.2.6. Semi-Structured Interview

The other instrument was a researcher-made semi-structured interview with 7 open-ended questions. The purpose of the interview was to find out about the learners' perceptions on MALL and the usage of mobile phone for English learning. To ensure the relevance of the questions for the purpose of the study, two EFL teachers validated the questions. They were asked to determine

whether questions were relevant with respect to the objectives. They were also requested to jot down some comments on the questions if necessary. The comments assisted the investigator to delete and revise some questions. Finally, 7 questions were selected for the participants to show their opinions freely. The interview was conducted through a face-to-face conversation in English after the treatment. See **Appendix E** for the semi-structured interview questions used for the current study.

3.2.7. Word Associate Test (WAT)

The next instrument used for this study was a word associate test (WAT), which is probably a well-known method of measuring learners' vocabulary depth. The WAT is devised by Read (1993, 1998) to estimate L2 learners' depth of vocabulary knowledge on the basis of three relationships among mental lexicon words: paradigmatic (meaning), syntagmatic (collocation), and polysemy. It includes 40 items, including one stimulus word (an adjective) and two boxes, one including four adjectives which are either synonyms or polysemous with the stimulus word and another including nouns that can collocate with the stimulus word. There are always four correct options for each item. Read (1993) reported the reliability of the test as 0.93; later, Qian (1999, 2002) and Nassaji (2004) estimated above 0.90. To score the WAT, 1 point is considered for the correct match of each word; therefore, 160 is the highest point. **Figure 2** below is an excerpt from this test. See **Appendix F** for the Word Associate Test (WAT) version used for the current study.

Sudden	
<input type="checkbox"/> beautiful ■ quick ■ surprising <input type="checkbox"/> thirsty	■ change <input type="checkbox"/> doctor ■ noise <input type="checkbox"/> school

Figure 2. A Sample Item of WAT (Read, 1998)

3.2.8. The Updated Vocabulary Level Test (UVLT)

The updated vocabulary level test (UVLT) was the other instrument of this study to assess learners' vocabulary size/breadth. The UVLT is probably the commonly used instrument to assess L2 learners' word knowledge (Read, 2000). It was initially made by Nation (1983) and later modified

by Schmitt, Schmitt, & Clapham (2001) to identify how well learners know useful English words and the extent to which learners could distinguish the form-meaning relations of words at four levels of word frequency (2000, 3000, 5000, 10000) and an academic vocabulary level. These four levels of frequency are based on the General Service List (GSL) (West, 1953), Kučera and Francis (1967), and Thorndike & Lorge's (1944) list, while the other section (academic) is on the basis of Xue & Nation's (1984) University Word List.

The researchers of the present study used the UVLT developed and validated by Webb, Sasao, & Balance (2017) at five levels of word frequency (1000, 2000, 3000, 4000, and 5000). It is worth noting that this test has the potential to measure all the levels together or measure the levels individually. There are 10 clusters with six wording, including distractors and keys along with three definitions in each level. Participants are asked to put a checkmark (✓) under the word corresponding to each meaning.

Unlike multiple-choice tests, the UVLT decreases the percentage of guessing the answer because the test shows the same type of vocabulary, so there are not any syntactic clues for the correct responses. The test-takers should match three words into their definitions. To score the UVLT, a correct check is having 1 point for each word; therefore, the highest score will be 150 points. Regarding the abovementioned information, the test used in the present study was the modified UVLT as a vocabulary size test or a breadth of vocabulary knowledge test. **Figure 3** below shows a sample item of UVLT. See **Appendix G** for the Updated Vocabulary Level Test (UVLT) version used for the current study.

	game	island	mouth	movie	song	yard
land with water all around it		✓				
part of your body used for eating and talking			✓			
piece of music					✓	

Figure 3. An Example of UVLT (Adapted from Webb, Sasao, & Balance, 2017)

3.3. Procedures

The study was carried out during the fall semester of 2019-2020 academic years over an 18-session treatment during six consecutive weeks (the participants in the experimental group would receive SMSs three times a week).

First, an OPT was administered to ensure the homogeneity of the participants based on their overall English proficiency level. The participants were placed in the pre-intermediate level.

The list of vocabulary items was delivered to the experimental group via SMS, six items in an SMS three times a week. They received SMSs including vocabulary items for 18 sessions during 6 consecutive weeks. Each word was used in one short sentence, with a synonym and a single word Persian translation at the end of the sentence in parenthesis. The SMSs were delivered to a group of 37 learners at once. In contrast, the control group received the traditional instruction i.e. they were given the same content items through inductive and deductive instruction in the classroom and the words were presented while teaching each unit. At the end of the experiment, the PET reading test was administered as a posttest to both groups to assess participants' scores and also the effectiveness of the treatment procedure.

The second step was devoted to the administration of the 21-item autonomy questionnaire as a pretest in order to delve into EFL learners' hidden layers of opinions and attitudes, as scholars believe that questionnaires are the most efficient and economical means of eliciting information (Denscombe, 2014). After finishing the treatment process, the learner autonomy questionnaire was administered for the second time as a post-test.

As a third step, the teacher interviewed the learners in the experimental group to investigate learners' perceptions of the benefits and challenges dealt with the use of MALL for learning. Since the semi-structured interviews provide more areas for the participants to give out their views on the subject matters (Cohen *et al.* 2011), the interview was carried out through a face-to-face session in English. The interview took about 5-10 minutes and the learners were interviewed individually. The participants were given a piece of paper and asked to write their answers for the qualitative open-ended questions designed to elicit a full and meaningful answer using the participants' own knowledge or feelings.

The final step was devoted to the administration of the UVLT and the WAT tests to assess learners' breadth and depth of vocabulary knowledge. Both tests were administered during one session. Based on Schmitt et al. (2001), the allocated time of the VLT was 31 minutes; as Qian (1999, 2002) and Nassaji (2004) state, the time for completing the WAT was 30 minutes. However, in this study, the time allocated for completing both tests (UVLT & WAT) was 70 minutes. The participants were told to select the option that best describes the meaning of the stem word in the absence of the context, and they were supposed to select the option that they knew the meaning of the stem word and answer to all the questions in the same manner. It was mentioned that their selection must not be random, and they should select precisely. There was no negative point for incorrect answers. The UVLT and WAT tests were administered to all the participants before the beginning of the treatment.

A list of vocabulary words from their course book as well as a numbers of words from the updated vocabulary level test appropriate for pre-intermediate learners was selected and delivered to the students in the experimental group via SMS, six items in an SMS three times a week. They received SMSs containing vocabulary items for 18 sessions during six consecutive weeks.

At the end of the experiment, the WAT and the UVLT tests were given as posttests to check the effect of text messaging on their depth and breadth of vocabulary knowledge, and the scores of the pretest and posttest were compared employing the nonparametric Wilcoxon-Singed Rank Tests.

Chapter 4

Research Studies

Paper 1

Title of the Paper: The Reflection of Vocabulary Implementation Through Educational Texting on EFL Learner’s Reading Skill

Authors: Behnam Behforouz and Anca Daniela Frumuselu

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The Reflection of Vocabulary Implementation through Educational Texting on EFL Learner's Reading Skill

Abstract— This paper investigates the efficiency of text messaging in the English as a foreign language (EFL) reading classroom at the Islamic Azad University-South Tehran Branch, Iran. After administration of an Oxford Placement Test (OPT), 74 participants who scored between ± 1 standard deviation of the mean were randomly assigned to an experimental and a control groups, with 37 individuals each. The reading part of the Preliminary English Test (PET) was administered as a pretest. The experimental group received 108 words via short messages in 18 sessions. During each session, they received 6 sentences with 6 words in a meaningful context. In contrast, the control group received traditional instruction. They were given the same structural points through inductive and deductive instruction in the classroom, and the words were presented while teaching each unit. After finishing the treatment procedure, the students in both groups were assigned to do a reading posttest. The results of the ANCOVA revealed no meaningful discrepancy between both groups based on the reading scores. Thus, vocabulary learning via short messages did not affect Iranian EFL learners' ability to comprehend pre-intermediate level texts.

Keywords: *vocabulary learning, texting, English foreign language learning, reading comprehension.*

1 Introduction

In reading comprehension, readers need to understand the text to gather some information or to perform activities with the received information. As Dallman (1982) states, reading is beyond knowing what each letter of the alphabet stands for, and it deals with more than word recognition. Rather, reading needs critical thinking for interpretation. Based on Kurniasih & Nurweni (2017), reading is difficult to analyze since it deals with the most complex working of the human mind; it is a real cognitive process. Put differently; reading is printed thinking. Reading comprehension is generally regarded as a basic requirement for foreign language (FL) learners' academic success. Often L2 proficiency considers grammar and vocabulary as the knowledge part of text understanding, while reading can be seen as a type of ability for this purpose (Koda, 2005). Studies

regularly confirmed that knowledge of vocabulary is highly related to reading comprehension rather than various other aspects like grammatical knowledge (Koda, 1989; Qian, 1999). According to Laufer (1997), without understanding the vocabulary of the text in L1 or foreign language, content comprehension is impossible. Consequently, without understanding the meaning of the words, L2 readers may experience difficulty improving comprehension. Therefore, vocabulary seems a significant factor in reading comprehension (Richards & Rodgers, 2001).

Learning vocabulary is a basic step in learning a foreign language. Hence, a large amount of studies has been conducted to enhance vocabulary learning efficacy (Akin & Seferoglu, 2004; Bruton, 2007; Erten & Tekin, 2008; Genc, 2004; Kassem, 2018; MCCarten, 2007; Moras, 2001; Newton, 2001; Tang & Nesi, 2003). Despite several studies carried out on vocabulary learning, students use significantly lower percentage of their efforts to solve their issues when acquiring new vocabulary (Meara, 1980). During class time, teachers and instructors mostly tend to have an attitude toward involving learners with this problem outside the classroom with their own responsibilities (Baykal & Daventry, 2000). However, students lack knowledge regarding the effective techniques of vocabulary learning, and have difficulty finding good strategies (Akin & Seferoglu, 2004). Using mobile technologies to support the learning process has become familiarized with the improvement of 21st-century skills (Henderson & Yeow, 2012; Lai & Hwang, 2014; Papadakis *et al*, 2016).

This application of technology provides a solution for FL learners to emphasize the authentic function of language. Mobile-assisted language learning (MALL) is a relatively new learning instrument that learners use with great potential to receive instruction anytime and anywhere for L2 classes. Also, the accessibility of mobile phones in Iran has been rapidly extended to different generations, so that information technology can generally increase opportunities for improving learners' English skills despite their age. It should be noted that MALL provides the opportunity to use a personal portable device to enhance learning regardless of time and place (De la Fuente, 2014).

There is an increase in the application of mobile tools for educational objectives and also for personal use all over the world (Ducate & Lomicka, 2009). Indeed, technical devices such as laptop computers and smartphones have revolutionized education and transformed traditional classroom-oriented instruction into anywhere and anytime education (Cavus & Ibrahim, 2009).

Even with the growth of reliable and trustworthy technological instruments and the accessibility of computers in Iranian universities and language institutes, as well as the increasing confirmation of blended teaching effectiveness, a large number of Iranian EFL teachers are not enthusiastic about applying such instruments in their EFL classes. As Dellicarpini (2012) stated, teachers' skills, knowledge, and opinions about the fruitfulness of instructional technology and the influential implementation of resources are reasons why teachers do not use digital technology when teaching languages.

The purpose of this paper is to use text messaging as an educational instrument to measure Iranian EFL learners' reading abilities to comprehend B1-level (pre-intermediate) texts. Sending and receiving SMS as a trustworthy and popular communication system among its users is a trendy instrument for communication worldwide. It has been viewed by studies as a proper and convenient instrument for educational purposes (Kukulka-Hulme & Shield, 2008; Lomine & Buckingham, 2009; Traxler, 2007).

In the following sections, some major studies regarding the mobile phone in learning will be investigated. Then the methodology of the present study will be presented followed by a discussion, and finally, the conclusion of the study with some recommendations will be stated.

2 Literature review

This part deals with the explanation of different studies conducted to discover the effect of mobile phones application on an instructional environment. Additionally, it will present different researchers' views on the effect of mobile devices in the instructional environment. Different factors affect the L2 learning process, such as input, the context, learner's first language, and even technology.

2.1 Mobile learning

Mobile-learning and m-learning are improvements to electronic learning (e-learning) (Singhal, 1997; Kikilias *et al.*, 2009) as they integrate e-learning and mobile computing, which point out the advantages of mobile technologies, such as the latest generation of mobile phones and tablets and their related applications (apps) (Papadakis *et al.*, 2016; Papadakis *et al.*, 2017). Without a doubt,

justifying students' needs in English learning, MALL is the next stage of educational technology improvement, indicating the digital convergence of e-learning and mobile technology in reaction to a more dynamic and active society that looks for a personalized, long-lasting universal education (Romero et al, 2010). Positive attitudes or perceptions towards MALL in higher education have been realized in various studies (Abadi & Saadi, 2015; Azli *et al.*, 2018; Botero *et al.*, 2018; Oz, 2015; Park, 2014; Saidouni & Bahloul, 2016; Soleimani, 2014). As a result, MALL seems to have preserved its position in teaching and learning foreign languages, and its place may be more dominant in the future.

Although Qureishi & Khan (2020) believe that learning through mobile phones can be considered as a modern occurrence, but the impact of such an instrument on educational learning can be considered endless. In addition, according to Bidin & Ziden (2013), MALL is rapidly developing as students can use them in various places at their convenient time, in the absence of any supervisor, which makes them independent learners. Such a capability is an advantage in that the experience of independence can motivate learners to keep on learning for future goals (Suneetha, 2013).

Kukulska-Hulme & Traxler (2007) stated that mobile learning can make the design of authentic learning possible. This kind of learning is advantageous for learners who cannot attend language institutions because of their jobs, chores, and various things that need time (Muhanna,2011). Different studies have been carried out on the application of social media programs like Facebook (e.g., Bowman & Akcaoglu, 2014; McCarthy, 2010) and Twitter (e.g., Kruger-Ross *et al.*, 2012; Reed, 2013; Warren & Wakefield, 2012) in classrooms.

In a study by Kalogiannakis & Papadakis (2017), the implementation of a didactic approach in a high school was initiated by teachers of environmental education through mobile phones and QR codes. Consequently, mobile technology in the environmental education program significantly affected the improvement of learners' knowledge considering environmental issues and the local flora and fauna.

2.2 The effects of SMS on educational context

SMS is the text messaging service part of most telephones, mobile device systems, and the Internet. It uses standardized communication protocols to provide mobile devices with the capability to exchange short text messages. Therefore, no student can be seen without a mobile phone. It happens in two situations: either the person is waiting for a reply from someone, or he is sending some messages to the other. Thus, learners have used text messages to generate virtual contexts, as well as opportunities to socialize (Campbell & Kwak, 2010). Accordingly, learners consider text messaging as a routine activity (Lin & Tong, 2007).

SMS can be considered as a modern technique that is applicable in the present educational context, and it can improve educational processes in various fields of study (Zide *et al.*, 2017). Arani (2016) believes that implementing educational SMS which deals with syntactical structures facilitates sentence paraphrasing in English classes. He also stated that teachers can use SMS as an instructional medium to teach all the required skills at their convenient time because of a lack of adequate teaching hour in the class. He argued that students who receive learning materials through SMS are more eager and motivated than other students. Since sending and receiving information using SMS is cheap, quick, and affordable, learners see it as a convenient way to communicate information (Mahmoud, 2013).

In an EFL context, lexical competence can be regarded as a major skill to better L2 comprehension, and it can rarely be denied that learners' vocabulary knowledge is highly associated with their reading comprehension as well as their overall academic success (Nation, 1990). In recent years, researchers have attempted to find solutions for questions dealing with the kind of most effective vocabulary instruction to help students learn new words and understand what they have read (Carrell & Eisterhold, 1983; Grabe & Stoller, 2001; Hulstijn, 1992; Rott, 1999).

Recently, much space in the research has been devoted to teaching vocabulary because it plays a vital role in language teaching and learning, particularly about communication. A high number of robust studies have been done on vocabulary instruction, and many of them have stated that it is impossible to teach all vocabulary a learner should know (Barcroft, 2015; Cameron, 1999; Robinson, 2001). However, a reader needs to recognize at least 95% of the surrounding words to

comprehend a text (Nation, 2001). This problem can be solved by using mobile-assisted instruments as effective ones in teaching and learning.

As can be observed, the theoretical framework of the current paper has tried to implement educational texting via mobile phone as a medium to implement vocabulary instruction among higher education students and to measure their ability to understand pre-intermediate level texts.

3 Method

The current study intends to measure Iranian EFL learners' competence in comprehending pre-intermediate-level material after texting them some vocabulary items. To this end, a quasi-experimental design was implemented including tests before and after the treatment. Later, the procedure including sampling, instrumentation, data collection, and data analysis will be explained in the following section.

3.1 Participants

A total of 88 university students with different majors (Chemistry, Civil Engineering, Computer Science, and Electrical Engineering) studying general English at the Islamic Azad University-South Tehran Branch, Iran participated in this study voluntarily. To measure their general English proficiency and ensure their homogeneity, the Oxford Placement Test (OPT), was administered. Afterward, homogenous students were selected as the study sample. It should be mentioned that the students covered a reading comprehension course within the semester. They were randomly divided into an experimental group and a control one, with 37 each.

3.2 Instruments

Various tools were used to collect the required data as follows. OPT was conducted to measure the learners' ability to communicate in English. This test includes 60 items with two parts: grammar, reading and vocabulary. The dependent variable was measured with the Preliminary English Test (PET). This test was administered as the pretest and posttest and includes five parts: Three-option Multiple Choice, Matching, True/False, Four-option Multiple Choices, and Multiple-Choice Cloze.

OPT rankings are shown in Table 1. The population of the current paper was selected based on learners' lower-intermediate scores; thus, all students who scored between 28 and 36 points were considered viable participants for the present research.

Table 1

Oxford Placement Test Ranking

Beginners	Elementary	Lower-Intermediate	Upper-Intermediate	Advanced	Very Advanced
1-17	18-27	28-36	37-47	48-55	56-60

Due to the policy of the Islamic Azad University-South Tehran Branch, the *General English Book: A Task-Based Approach* written by Daftarifard and Bagherpour (2018) must be used as the coursebook for reading comprehension. This book contains nine lessons with color photos and tables. Only the first five lessons were taught during this semester. Each lesson covers different types of reading strategies such as guessing, scanning, skimming, reading a table, summarizing a text, etc.

The researchers used SMS to send vocabulary content. Since the focus of this study was on the use of mobile phone technology to measure learners' reading comprehension, students in the experimental group use this tool to receive SMS as treatment. The total number of SMSs were 18 messages for six weeks of treatment. The vocabulary items and their examples were within sentences so that the students can easily read the messages on their small screens. The delivery reports of the mobile phones were controlled to remove the possible failure of the system. Below are sample SMSs sent to the learners' mobile phones on the fourth and fifth weeks of the project (see Figures 1 and 2 in the Procedure section).

3.3 Procedure

The present study was conducted during the fall semester of the 2019-2020 academic year over an 18-session treatment during six consecutive weeks (the participants in the experimental group would receive SMSs three times a week). It should be mentioned that the first and the last sessions were devoted to the administration of the PET pretest and posttest, respectively. The same teacher

taught both groups. The researcher used SMS to measure the improvement or lack of it in learners' reading comprehension by implementing vocabulary via SMS. To complete the process of collecting data, the researcher went through several procedures.

First, to ensure participants' homogeneity, an OPT was administered to 88 students studying at the Islamic Azad University-South Tehran Branch. Seventy-four participants, based on their OPT scores, were placed in the pre-intermediate level and were randomly assigned to two groups (experimental and control). The next step was the administration of the PET reading test as a pretest to assess participants' prior knowledge of ability in reading comprehension. After the administration of the pretest, the treatment procedure took place.

The vocabulary list was delivered to the experimental group via SMS, six items per SMS three times a week. They received SMSs, including vocabulary items, for 18 sessions in 6 weeks. Each word was used in one short sentence, with a synonym and a single word Persian translation at the end of the sentence in parenthesis. The SMSs were delivered to the group of 37 learners at once. Figure 1 shows the 12th lesson of the fourth week. These items were selected from the course book and were sent to all 37 learners in the experimental group.

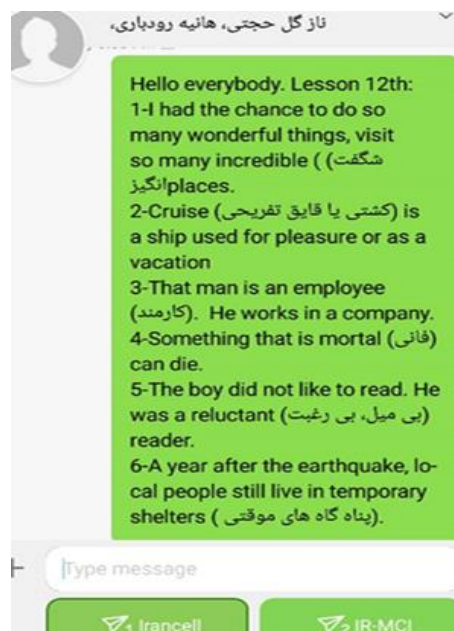


Figure 1 Lesson 12, Week 4.

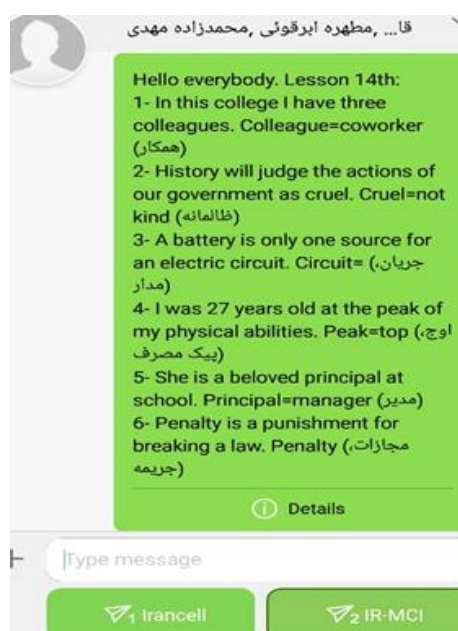


Figure 2 Lesson 14, Week 5

Figure 2 shows the vocabulary item from week 5. All the participants in the experimental group received the lesson. The items were selected from the coursebook.

In contrast, the control group received the traditional instruction, i.e., they were given the same items through inductive and deductive instruction in the classroom, and the words were presented while teaching each unit. At the end of the experiment, the PET reading test was administered as a posttest to both groups to assess the participants' scores and the effectiveness of the treatment procedure.

3.4 Data analysis and findings

This part concerns the presentation, analysis, and interpretation of data collected over six weeks at the Islamic Azad University-South Tehran Branch. After collecting the data from the research instruments, descriptive analysis was carried out focusing on the basic features of the data, and inferentially, trying to reach conclusions that extend beyond the immediate data alone. To investigate EFL learners' reading comprehension ability when they were exposed to increased vocabulary using SMS via mobile phones, the Statistical Package for Service Solution (SPSS) program was used. To this end, covariance (ANCOVA) was employed to compute the mean discrepancies between both groups.

To check if the sample is homogenous in terms of their general English proficiency level, an OPT was given to the initial sample. After the OPT, 74 out of 88 participants were considered homogenous learners according to their scores, ranging from 28 to 36 (pre-intermediate level). Table 2 shows that the mean and the standard deviation of the participants are 31.66 and 2.22, respectively. It also shows that the selected participants are homogenous regarding their ability to communicate in English.

Table 2

The Descriptive Statistics of the Homogenized Participants

	N	Min	Max	Mean	Std. Deviation	V
Homogenized	74	28.00	36.00	31.662	2.228	4.966
Valid N (listwise)	74					

The study sought to investigate whether vocabulary implementation could affect Iranian EFL learners' ability to comprehend pre-intermediate level texts. To delve into this aspect, an ANCOVA test was implemented. In Table 3 below, the mean for both groups, control and experimental, in terms of reading scores are 21.40 and 22.86, respectively.

Table 3

The Descriptive Statistics for the Adjusted Reading Scores of the Two Groups

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Control	21.403 ^a	.693	20.021	22.785
Experimental	22.867 ^a	.693	21.485	24.250

The ANCOVA results can be seen in Table 4 below, in which, the pre-scores variable is the covariate. When we include a covariate, we have more than one effect, and we could calculate eta squared for each effect.

Table 4

The Result of the ANCOVA for the Comparison of the Reading Scores

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1067.233a	2	533.616	30.035	.000	.458
Intercept	559.429	1	559.429	31.488	.000	.307
Pre_Scores	1041.071	1	1041.071	58.598	.000	.452
Group	39.622	1	39.622	2.230	.140	.030
Error	1261.416	71	17.766			
Total	38586.000	74				
Corrected Total	2328.649	73				

As Table 4 shows, there is no huge discrepancy between both groups in terms of reading scores, $F(1, 71) = 2.23$, $p > .05$, partial $\eta^2 = .03$. The partial Eta Squared value is used to define

the amount of variance in the dependent variable (vocabulary increment) by the independent variable (learners' reading comprehension) (0.3%), which is considered trivial. Therefore, vocabulary implementation did not affect Iranian EFL learners' ability to comprehend pre-intermediate level texts. It is worth noting that sample size decreases the statistical power of the study and increases the margin of error, which can interpret the study meaninglessly.

To measure learners' perceptions toward mobile assisted language learning, an interview session with the experimental group was conducted with some researcher-made questions and the results revealed that students are interested in using mobile phones in academic exposures (study is under process for publication).

4 Discussion

The current research intended to measure the impact of vocabulary implementation using SMS on Iranian EFL learners' ability to comprehend pre-intermediate level texts. In this regard, a pretest was used to understand their reading comprehension, and the results confirmed that both the control and experimental groups have a similar level of understanding in terms of reading skills. To measure the effects of treatment, which was receiving vocabulary through SMS, another reading test was conducted as a posttest, and its results were compared with those of the pretest. The results showed that although the experimental group gained better scores, the difference was not academically significant. This means that in the design of the current study, with 74 participants and perhaps with 108 vocabulary items given to students each week, the results were not statistically significant. The findings of the current study showed that Iranian EFL students could not display positive performance in understanding pre-intermediate-level texts. It seems that vocabulary seems is not the only factor that affects reading ability.

The results of the current research are compatible with those of a few empirical studies. Plester *et al.* (2008) reported that sending more than three texts a day tended to results in lower scores in literacy tests than when they were not sent. The findings of this study are in line with those reported by Ali *et al.*, (2019). They investigated the impact of texting on ESL learners at Aligarh Muslim University. The findings revealed negative effects of texting on ESL learners. Powell and Dixon (2011) stated that text messaging could have a negative influence on learners' spelling. Tayebinika & Puteh (2012) asserted that the negative effect of using text messaging on

English literacy reduces formal writing, affects speaking skills, and damages grammatical skills, creating some confusion in the spelling of words. Verheijen (2013) also suggested that students are unable to distinguish informal and formal contexts and use texts at the wrong time. Wood et al. (2014) also found out that the SMSs of primary and secondary school learners were full of grammatical issues. Indeed, these students made more capitalization and punctuation errors and used unconventional punctuation more than adult learners, when the length of their messages was considered.

The findings of this study are consistent with those by Ahmadpour & Yousefi (2016) who attempted to determine the role of MALL on EFL learners' writing accuracy, fluency, and complexity. The results indicated that although the writing fluency and complexity of the experimental group improved in comparison with their control peers, the accuracy aspect followed a reverse pattern.

The findings of the current paper also have similarities with the results of a study done by Kibona & Mgaya (2015) who found that smartphones delivered negative results on the academic performance of university students. The results also agree with the findings of Yavuz (2016), which showed no difference between the experimental and control groups in listening and pronunciation courses. However, the findings of this study are not consistent with those by Rasheed *et al.* (2019).

However, the findings are not in line with the results reported by Kassem (2018), which showed that the integration of the teacher-training program and vocabulary instruction applications was successful and effective. This study's results also disagree with those of the study by Li et al. (2017), which aimed to discover the effect of texting to improve academic vocabulary learning. The findings emphasized learners' positive experience with the treatment, the feasibility of the treatment design, and its impact in supporting English language learners' vocabulary study.

In addition, the results here are not consistent with those presented by Gurocak (2016). She revealed that mobile learning through text messaging could improve learners' vocabulary knowledge and help them acquire L2 words more consistently. The results of the current study are also against those of a study by Cavus & Ibrahim (2009), which focused on students' positive attitudes toward learning vocabulary through mobile phones. This study is also in disagreement

with the results of Saricoban & Ozturan (2013), who examined the effectiveness of mobile learning by sending technical words and meaningful sentences for ESP learners every day for three weeks. Their findings showed that students learned the words in a motivated, enjoyable, and effective way. The present results also are not consistent with those reported by Moura & Carvalho (2012), which indicated learners' positive attitude toward the use of SMS for learning and the use of their own mobile devices as a learning instrument. Learners revealed their interest in receiving pedagogical content through SMS. Some learners greatly enhanced their language learning performance.

Saran *et al.* (2008) discovered that vocabulary programs of mobile phones improve vocabulary gain and enhance learner motivation. Lu (2008) reported similar findings. Lu (2008) showed that mobile phone users received greater achievement in a word knowledge test, and developed a positive attitude toward mobile phone application. The results are not also in accordance with findings by Hulstijn & Laufer (2001), who stated that mobile phones can be an influential medium for self-learning L2 vocabulary.

Although the current study reached its objectives, there were some inevitable limitations. First, because of the small sample size, the results may not be generalizable for the considered population. Second, learners' motivation, aptitude, affective, and attitudinal parameters were not taken into account. A further study can be carried out by examining these parameters. Third, the focus of the present study is on reading skill, and other skills were not considered; thus, a further study investigate other skills such as writing, speaking, and listening. Fourth, only pre-intermediate level learners took part in this study, so another study may focus on learner's various language proficiency levels. Fifth, the focus of this study was limited to sending SMS to improve learners' vocabulary knowledge, so additional goals could be added for a more in-depth view of the group's tendencies when they are in contact with this type of educational tool.

Additionally, more qualitative analyses are needed in these types of studies to grasp not only learners' performance but also their response to the application of SMS as an educational instrument in the EFL classroom.

5 Conclusion

The present study was a short, six-week investigation at Azad University-South Tehran Branch. It has extended the existing body of literature that investigates the effect of vocabulary increments through mobile phone text messaging on learners' ability to comprehend B1-level texts. As the findings of this study showed, although SMSs can be easily sent at pre-scheduled times and intervals, can be saved systematically, and are available for later retentions, they could not facilitate certain forms of learning. This can be because newly learned vocabulary items that were only weakly acquired. As these vocabulary items are held in one's working memory for a short time, they could not be part of the linguistic system of the students. When there is no repeated exposure to vocabulary, they can be easily removed from learners' working memory. Whenever new words are integrated into learners' long-term memory, they can be tightly attached to a network of ideas, words, and concepts that the brain can access effortlessly (Wolfe & Nevills, 2004).

Using mobile phones in EFL contexts does not always result in positive effects on academic performance. Although smartphones may substantially improve the foreign language learning process, several studies have highlighted certain limitations to use smartphones in higher education contexts. One of these pitfalls is smartphone addiction, which is being increasingly investigated by researchers worldwide. It can be concluded that smartphones must be used appropriately, with sufficient preparation and clear objectives in mind. It is worth noting that teachers all over the world are provided with adequate and influential training to implement MALL appropriately and effectively. Therefore, research on MALL and the use of SMS is still in its infancy. There is undoubtedly a need to conduct a tremendous amount of research to clarify the details of this subject.

The results of this study cannot be generalized as the number of participants and the amount of data are not broad. More accurate and generalizable results would be achieved if the framework of the study was more general. The study recommends further investigation on the effect of SMS on other skills such as writing practices. In summary, a deeper and more comprehensive understanding of the subject under investigation can be accomplished by conducting a qualitative analysis to reveal the depths of such a subject and to have a broader vision of the current results.

Paper 2

Title of the Paper: The Impact of Text Messaging as an Instructional Tool to Enhance Learner Autonomy and Perception

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The Impact of Text Messaging as an English as a Foreign Language Instructional Tool to Enhance Learner Autonomy and Perception

Abstract. This paper investigates the efficiency of text messaging as an English as a Foreign Language (EFL) instructional tool to enhance learner autonomy and perception at the Islamic Azad University-South Tehran Branch, Iran. The study considered seventy-four learners to participate in the study after the administration of an Oxford Placement Test to measure their proficiency level. Participants were randomly assigned in experimental and control groups, including 37 participants each. A questionnaire) was used as a pretest and posttest to measure learners` autonomy. The experimental group received 108 words via text messaging during 18 sessions. In contrast, the control group participants received traditional classroom instruction in a face-to-face teaching and learning environment. A semi-structured interview is also used to collect data on experimental group participants` perception in using MALL in classrooms. The results revealed remarkable differences between the experimental and control groups` means on their learner autonomy scores. However, the impact of the independent samples t-test has shown that there was no statistically meaningful gender difference among the learners regarding their autonomy scores. The findings based on the semi-structured interview showed complimentary views on MALL. The current study is beneficial since its outcomes could be relevant for EFL curriculum developers and English language teachers in the use of mobile learning and text messaging in the English classroom.

Keywords: Text Messaging; EFL; Learner Autonomy and Perception; Mobile Assisted Language Learning

1. Introduction

Interested with the manifestation of communications technology, different aspects of life, including language-learning systems, have been changed. This change is produced by means of communication technology, young people, and the worldwide use of the English language (Buckingham as cited in Hazaea & Alzubi, 2018). In technology development, the mobile phone is commonly used worldwide. The flexibility and the other characters, such as size, cost-effectiveness, and user-friendliness, are among the benefits of mobile technology. Since phones have gained strengths, they are inexpensive and easy to use, then, the study of mobile-assisted language learning (MALL) changes to be a required field of study. Due to its popularity, it is not rare that it is used as a learning tool. In this respect, mobile phones are used for different personal objectives, and they can transfer the learning process to a more interesting one while acquiring other language skills. There is a shift in learning context from traditional to digital by emerging technological development such as mobile phones, tablets, pods, pads, personal digital assistants, electronic pocket dictionaries, MP3 players, and other portable devices (Fredrick & Karthikeyan, 2018). Among other moveable technological devices, cell phones are the most universally functional platform in the educational process. The capabilities of these devices are being developed in educational contexts day by day. Regardless of the place and time, their mobility, accessibility, and applications have made them useful in promoting learning. Some research studies have been done based on using mobile phone devices for educational goals, and they have revealed a gradually increasing use among learners (Johnson & Radhakrishnan, 2017; Ng, Hassan, Nor, & Malek, 2017; Patel, 2013; De la Fuente, 2014; Ducate & Lomicka, 2009).

A successful foreign/second language learning process requires interaction with people and communication in the target language. To strengthen learner`s foreign language skills, they need to cooperate and interact with others. This interactive and cooperative aspects of learning have been focused due to the rapidly growing interest of the current generation of EFL learners in a digital world. Using mobile phones is an excellent part of their daily experience outside of educational contexts (Ivić & Jakopec, 2017; Cavus & Ibrahim, 2009, Belard & Murphy, 2016).

Utilizing m-learning, learners can experience multimedia learner-centered learning with various activities and enjoy a more interaction-focused learning process. M-learning gives learners the ability to experience the real world's feelings and emotions via interacting with the real

environment, learning materials, and increasing their learning motivation and interest (Huang, Jeng & Huang, 2009; Liu, 2009). It should be mentioned that m-learning is not a substitute for today's existing learning tools and techniques but is an extension for learning in a new context with modern capabilities. The learners' knowledge, skills, and attitudes toward m-learning are very significant because the output quality relies on it. MALL is a compelling way to learn a language for a non-native person (Krishna, 2020).

Among different types of mobile communication, texts messaging and instant messaging are practical in educational institutions. Text messaging or texting is a two-way communication among the phones through some short, typed messages, so-called short message service (SMS) (Kasesniemi & Rautiainen, 2002). Texting is used pervasively among learners (Johnson, 2007; Smith, Salaway & Caruso, 2009). Accordingly, Rahamat *et al.* (2012) showed that learners whose teachers were sent some text messages stayed motivated in the learning process. They were very interested in continuing learning since they had the sense of being appreciated and accepted. Based on this finding, all human activities are arbitrated through culturally defined or created signs or instruments that the 'subject' (person) interchanges with the 'object' (lesson content) via the application of the mediating devices (mobile technology) to gain the 'outcome' (goal) (Cowan & Butler, 2013).

Considering the resources, opportunities and collaboration, the process of teaching in the 21st century is regarded as an inspiring activity. The portability of mobile phones has enabled learning independently of place and time, even outside the classroom. In fact, in this digital century, MALL has become a good way to support the growth of learner autonomy (LA) in EFL contexts, as learners who are exposed to EFL learning materials can use their smartphone properties, applications and apply learning strategies on their own in an independent learning context to promote autonomous learning skills, and consequently their language competence (Alzubi, 2019; Pollara & Broussard, 2011; Fabian, Topping & Barrons, 2018). Therefore, this study investigates the implementation of text messaging in Iranian EFL university students' abilities in learning a foreign language process.

Regarding gender, some of the research studies have found some gender differences in mobile technology usage in some national and cross-cultural contexts (Hijazi-Omari & Ribak, 2008; Baron & af Segerstad, 2010). A study carried out by Wang, Wu & Wang (2009) examined

the factors dealing with m-learning acceptance to investigate age or gender differences. 330 participants were studied in this research, which was done in Taiwan. The findings showed that age and gender differences moderate the effects of social influence on the intent of using m-learning.

Previous research studies on MALL have tended to find learners' perceptions of the mobile device's functions and its function in education (Kim, Rueckert, Kim & Seo, 2013; Stockwell, 2010). Few studies have investigated learners' perceptions regarding the usage of a mobile device in an educational context. As such, the researchers of the current study analyzed the reflection of EFL learners' reading comprehension abilities through SMS text messaging through an experimental design. They found no remarkable differences between the means of the experimental and the control group in terms of posttest scores on reading comprehension. To fill this research gap, this present study aims at answering the following questions:

RQ1: Are learners more autonomous in their learning after using text messaging as an instructional tool?

RQ2: Is gender a distinguishable variable in autonomy after using text messages?

RQ3: How do learners perceive the use of MALL in the EFL learning context?

Based on the above-mentioned research questions, the following null hypotheses were posited:

H01: The Iranian EFL learners are not more autonomous in their learning after using text messaging as an instructional tool.

H02: Gender does not have any significant effect on the learner's autonomy after employing text messages.

2. Literature Review

Researchers conducted a significant number of discussions and empirical studies on learner's autonomy and learner's perception (Little, 1991; Min & Borg, 2018; Tran & Duong, 2018; Yunus & Arshad, 2015). In light of the posited research questions, this part investigates the existing literature and will present theoretical background on learner autonomy and MALL perception in an EFL context.

2.1 The Concept of Learner Autonomy

It can be observed that no general agreement does exist on the learner autonomy among the linguists and the educators. Considering the existing literature, there is the dichotomy of autonomy and independence, each having its own advocates. Little (1991) argues that learner autonomy focuses on interdependence over and above independence; and, Dickinson (1994) relates autonomy to the concept of learning by taking active responsibility for one's learning. Further, Dickinson (1994) defines autonomy as an independent capability that works with the language to communicate personal concerns in real and unpredictable situations. Therefore, language learners need to have the capacity to read between the lines rather than reading the lines while autonomously completing their education. One of the most influential definitions is given by Holec (1981), in which he defines learner autonomy as the learners' abilities to take responsibility for their learning. Meanwhile, it includes learners' decision-making while learning, particularly in setting learning goals, specifying content and progress, selecting learning methods, monitoring, and assessing learning. It indicates that learners are free to plan and control their learning by choosing what, when, and how to learn following their interests, essentials, and capabilities.

As Benson & Voller (1997) state, learner autonomy is suggested to be functional in the following five modes including: 1) situations in which learners study entirely on their own; 2) a set of skills which can be learned and used in the self-directed learning; 3) an inborn capacity which is suppressed by institutional education; 4) the exercise of learners' responsibilities for their learning; and 5) the right of learners to determine the direction of their learning. Dickinson (1995) asserts that learner autonomy is a learning behavior or mechanism, including a learning attitude and an independent learning ability. He refers to attitude as the learners' responsibility to make decisions for their learning and capability as the reflection on decision-making and learning.

2.2 MALL and Learner's Autonomy

According to Sung, Chang, and Yang (2015), implementing a mobile phone in language learning contexts can increase the learners' autonomy levels. They mentioned that mobile phones could be helpful for some reason. The primary reason is that by using mobile phones, the learners can easily control their own learning. The learners can use this option to self-direct and personalize their

learning process with the appropriate learning speed, without time and place restrictions. The second reason for using mobile phones is that they help students interact and collaborate with their teachers and classmates easily; thus, such collaboration can help learners to the extent the attention, metacognitive abilities, and reflection. Thirdly, mobile phones allow the students to have easy and self-access to educational materials designed by the teachers.

In a study by Sato, Murase, & Burden (2015), ninety-seven undergraduate students were participated to measure the effect of mobile-assisted language learning on the learner's autonomy. The finding of the study revealed that MALL helps the learners to remember the target language better. Although their questionnaire results were not so remarkable, they concluded that MALL could increase the level of motivation in students learning vocabulary capabilities.

In another study by Ramamurthy & Rao (2015) on seventy students of International College of Automotive (ICAM), based on using mobile phones and the number of learners' autonomy, it was revealed that the usage of these devices fosters the learners' autonomy even though a little bit.

Purwaningrum & Yusuf (2019) studied thirty Indonesian graduate students to measure MALL's practicality on the learners' autonomy. Results indicated the students' satisfaction toward implementing MALL in the educational process, which leads to objectives accomplishment, and the learners' autonomy had increased as well.

2.3 Promoting Learner Autonomy and EFL Teaching

In EFL research studies, learner autonomy plays a central role. Current school curricula and educational paradigms inspire pedagogy for autonomy (Council of Europe, 2001). Plenty of scholars have promoted its development, but few have investigated its practice (Benson, 2011; Dam, 2011; Dickinson, 1995; Little, 2007; Miliander & Trebbi, 2011; Trebbi, 2011).

Teachers play a significant role in the autonomous learning environment. Learner's autonomy relies on teachers who initiate an educational context where autonomy is admitted. In the same context, Camilleri (1999) mentions some attributes that teachers must consider in an autonomous learning exposure involving pedagogical realization, self-awareness, and classroom management techniques. Little (1995) asserts that it is hard for learners to accept their learning

responsibilities in such a new autonomous-type learning environment. Therefore, teachers need to motivate the autonomy of their learners inside of the class. Nunan (1997) discusses that encouraging learners' autonomy has some stages: awareness, involvement, intervention, creation, and transcendence. In the first level, which is awareness, students will be familiarized with the course's objectives and materials. In the involvement level, students choose their aim from a variety of available alternatives. In the next stage, which is called intervention, learners improve and adjust the course objective and content. In the following step, students form their own goals and, finally, the transcendence level, in which the students use the course content in the authentic settings.

2.4 Learners' Perception of MALL

The field of education has been revolutionized through the manifestation of technology. The application of technology in developed countries in educational institutions and classrooms is becoming a systematic practice. Kim, Ruecker, & Kim (2017) attempted to explore the advantages of learning via cell phone for TESOL learners and to investigate their learning insights with such sort of technology. The study recommended effective instructional strategies, continuous technical support, and assisting through professional development training.

Azli, Shah, & Mohamad (2018) conducted a study to determine the perception of the application of MALL in ESL college students. The required data were collected through the administration of a Technology Acceptance Model (TAM) questionnaire. The findings showed the positive viewpoints of the participants in the MALL. Most of the respondents indicated general agreement on both perceived ease of use (PEoU) and constructed perceived usefulness (PU) of MALL. They believed that the practice of MALL could improve the process of teaching and learning.

In a recent study, Dehkordi & Taki (2018) examined the perceptions of 90 Iranian EFL learners on MALL usage. The study's goal was to find the discrepancies among the Iranian male and female EFL learners' perceptions towards mobile assisted language learning. The study also attempted to reveal the difference between the mobile learning capabilities of the learners. To collect the required data, Mobile Learning Perception Scale developed by Uzunboylu & Ozdamli (2011) was used. The findings revealed no remarkable gender difference between Iranian learners

in the m-learning process. Both genders had positive attitudes on m-learning and technology-based language learning.

Considering the studies mentioned above, there is consistent evidence that learning issues related to learner autonomy and learners' perception of MALL use are influenced by not using mobile phones in general, but by involvement with different aspects (e.g., text messaging, SMSs, etc.) of these instruments.

3. Methodology

This part presents the method used to design the study and the data collection procedure. The study's goal was to determine whether text messaging as an instructional tool had any significant effect on EFL learners' autonomy and to understand the learners' perception towards the use of MALL. To this end, an experimental design with the total procedure of sampling, instrumentation, data collection, and data analysis are explained in continue.

3.1 Participants

A number of 88 undergraduate university students with different majors (Chemistry, Civil Engineering, Computer Science, and Electrical Engineering) studying General English at the Islamic Azad University-South Tehran Branch, Iran voluntarily took part in this study. To measure the participants' general English proficiency level and to ensure their homogeneity, an Oxford Placement Test (OPT) was administered. After the OPT, a number of 74 students (48 females and 26 males) within the age range of 21 to 26 years old who scored between 28 and 36 points (pre-intermediate level) were selected as the study sample. These participants were randomly assigned into two groups, i.e., an experimental group and a control one, each including 37 learners. They were all Persian native speaker and all of them had a mobile phone to use for the study.

3.2 Instruments

To begin with, an Oxford Placement Test (OPT) was conducted before the treatment to measure the group's homogeneity and if learners had a similar proficiency English level. This test was used in this study since it was easy to administrate, culturally accepted based on produced doctoral theses and articles in Iran. The allocated time to complete the test was 55 minutes. This test consists

of two parts with 60 multiple-choice items and cloze tests. The first part consists of 40 questions and the second part consists of 20 questions. Participants were required to read the items and then choose the correct answers among the choices. According to the test norms, the participants' scores are ranked in 6 levels, from beginners to advanced levels. Table 1 shows the OPT ranking. The sample of the current study was selected based on learners' lower-intermediate scores; thus, all the students who scored between 28 and 36 points were considered viable participants for the present research.

Table 1

Oxford Placement Test Ranking

Levels	Range of the scores
Beginner	1-17
Elementary	18-27
Lower-Intermediate	28-36
Upper-Intermediate	37-47
Advanced	48-55
Very Advanced	56-60

As far as participants' autonomy is concerned, the 21-item questionnaire designed by Zhang & Li (2004) was used to measure this variable. To calculate the questionnaire's internal reliability that Zhang and Li calculated, Cronbach alpha was used, which turned out to be 0.89. This questionnaire consists of two parts; one part has 11 items through a 5-point Likert scale, which is coded as (A. never; B. rarely; C. sometimes; D. often; E. always), and the second part includes 10. The second part of the questionnaire is in a multiple-choice format. The Likert-type items are generally considering the principles of learner autonomy in real language learning contexts. In contrary, the second part of the questionnaire contains 10 forced-choice format items (there is no 'non-response' type choice, such as "no idea," "don't know," "not sure"), which examines learners' perceptions towards concepts of learner autonomy in depth. To change the participants' selections to numerical data, the options A, B, C, D, and E are marked one, two, three, four, and five, respectively. 105 is considered as the total mark. The participants were asked to respond to each item, selecting one option among the others. The autonomy questionnaire was administered twice, as the pretest and posttest, to determine the differences between learners' autonomy towards implementing MALL as an instructional tool before and after the treatment.

The third instrument was a semi-structured interview prepared and administered to the experimental group by the researchers, including seven open-ended questions that treated the aspect of MALL and SMS text messaging in the EFL classrooms. These items are designed to motivate a full, meaningful answer through the participant's own knowledge and/or feelings. It should be mentioned that open-ended questions are often more objective and less leading than closed-ended ones. Considering the theoretical background and types of questions that the interviewer required to ask (Lindlof & Taylor, 2002), some of the questions were developed in advance. The purpose of the interview was to understand the learners' perceptions of MALL and mobile phone usage for English learning. To ensure the relevance of the questions to the study's purpose, two EFL teachers validated the questions. They were asked to determine whether questions were relevant with respect to the objectives and whether they were clearly and coherently formulated. They were also requested to jot down some comments on the questions if necessary. The comments assisted the investigator to delete and revise some questions. Finally, researchers selected seven for the interview to indicate their opinions freely (see Appendix 1 for a full version of the interview). After the treatment procedure, the experimental group participants who were exposed to SMS text messaging over a period of six weeks took part in a face-to-face English conversation. The interviewer asked the questions, and the learners were asked to state their perceptions, feelings, and opinions about the use of MALL in EFL classrooms.

3.3 Procedures

The researcher administered the OPT initially to ensure the participants' homogeneity prior to the treatment's commencement. Regarding the scoring agenda in OPT, it should be mentioned that each right answer was scored as plus one, and there was no negative point for any incorrect or unanswered items of the test.

During the reading course in the fall semester of 2019-2020 academic year, the study was carried out over an 18-session treatment during six successive weeks (the participants in the experimental group would receive SMSs three times a week). The same teacher took the responsibility of teaching both groups. The researcher used text messaging to improve learners' autonomy and determine their perceptions toward MALL in the language learning context.

The second step was devoted to the administration of the 21-item autonomy questionnaire as the pretest for the learners of both groups to delve into the EFL learners' hidden layer of opinions and attitudes because scholars believe that questionnaires are the most efficient and economical means of eliciting information (Denscombe, 2014). After finishing the treatment process, the learner autonomy questionnaire was administered for the second time as a posttest to check SMS text messaging's effectiveness as the treatment procedure.

As a final step, the teacher interviewed the learners in the experimental group to investigate learners' perceptions of MALL learning. Since the semi-structured interviews provide more areas for the participants to give out their views on the subject matters (Cohen, Manion & Morrison, 2011), the interview was carried out through a face-to-face session in English. The interview took about 5-10 minutes, and the learners were interviewed individually. Students needed to talk about their own previous MALL experience, their feeling about text messaging in vocabulary learning, the usefulness of text messaging in EFL classrooms, their ideas about the future implementation of text messaging in EFL learning, and the problems while using text messaging in the EFL classes.

4. Data Analysis and Findings

This section deals with the presentation, the analysis, and the interpretation of data collected. After collecting the data from the research instruments, descriptive analysis was carried out focusing on the basic features of the data, and inferentially, trying to reach conclusions that extend beyond the immediate data alone. To investigate learner autonomy and learner perception towards the use of MALL after being exposed to English learning using text messaging via mobile phones, the quantitative data were analyzed with the Statistical Package for Service Solution (SPSS) program.

In order to have homogenous participants based on the General English language level, the OPT was administered, and 74 participants were considered homogenous based on their OPT scores, which ranged from 28 to 36 points that would correspond to the pre-intermediate level or B1 level, according to CERF. Table 2 reveals that the mean and the standard deviation of the homogenized participants were 31.66 and 2.22, respectively. This standard deviation means that most of the numbers are close to the average; therefore, participants' scores show that they have a homogenous general English proficiency level in the experimental and control groups.

Table 2

The Descriptive Statistics of the Homogenized Participants

	N	Min	Max	Mean	SD	V
Homogenized	74	28.00	36.00	31.66	2.22	4.96
Valid N (listwise)	74					

To answer the first research question, an ANCOVA test was run on the learners' performance in the autonomy questionnaire by Zhang and Li (2004) to compare the autonomy scores between the two groups. Table 3 shows the descriptive statistics for the autonomy scores of both groups. According to Table 3 below, both groups' means related to the autonomy scores are 71.05 and 73.94. As can be seen, the standard of error (= .229) shows the standard deviation of the mean within the collected data; the smaller the spread, the more accurate the dataset.

Table 3

The Descriptive Statistics for the Adjusted Autonomy Scores of the Two Groups

Group_C_E	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
control	71.052a	.229	70.596	71.507
experimental	73.948a	.229	73.493	74.404

Table 4 below presents the result of the ANCOVA test. Based on the statistics of Table 4, there was a statistically significant difference between the control and the experimental groups based on their autonomy scores, $F(1, 71) = 80.28, p < .05, \text{partial } \eta^2 = .53$. The partial Eta Squared represents the effect size and is comparable with Cohen's (1988) guidelines (0.2-small effect, 0.5-moderate effect, and 0.8-large effect). The ANCOVA results indicate that there are significant differences between the two groups' means on their learner autonomy scores. Therefore, the first null hypothesis was rejected, so this means that using text messaging as an instructional tool had a statistically significant effect on learners' autonomy.

Table 4

The Result of the ANCOVA for the Comparison of the Autonomy Scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Corrected Model	3227.284a	2	1613.642	834.94	.000	.959	
Intercept	8.641	1	8.641	4.47	.038	.059	
Pre-scores	3042.297	1	3042.297	1574.17	.000	.957	
Group_C_E	155.161	1	155.161	80.28	.000	.531	
Error	137.216	71	1.933				
Total	392327.000	74					
Corrected Total	3364.500	73					

The second research question aimed to answer whether gender had any statistically significant role in students' autonomy after receiving text messaging. Prior to the investigation of the second null hypothesis, the two groups (male and female) were compared to their autonomy scores. To check the assumption of normality, the Shapiro-Wilk test of normality was used. Assumption of normality means that it must be sure that the data roughly fit a bell curve shape before running specific statistical tests or regression. The Shapiro-Wilk test is based on the correlation between the data and the corresponding standard scores. The result of the Shapiro-Wilk test of normality in Table 5 reveals that the data are typically distributed for the two sets of scores (Sig>.05). It is worth mentioning that if the Sig. Value of the Shapiro-Wilk test is more prominent than 0.05; then the data are considered normal.

Table 5

The Result of the Normality Test for the Scores of the Males and Females

	Gender	Shapiro-Wilk		
		Statistic	df	Sig.
Post-scores	female	.976	26	.776
	male	.963	11	.812

After checking the normality of data, the independent samples t-test should be used for mean comparison. The descriptive statistics of the two groups are presented in table 6. The mean and standard deviation of the females and males are 70.88, 6.87, and 71, 5.89, respectively.

Table 6

The Descriptive Statistics for the Scores of Males and Females

	Gender	N	Mean	SD	Std. Error Mean
Post-scores	female	26	70.884	6.877	1.348
	male	11	71.000	5.899	1.778

The independent samples t-test was run to measure the difference between the mean scores of female and male participants. Since the p-value is higher than the alpha level ($.96 > .05$) in Table 7, it shows that there was not a meaningful discrepancy between the male and female participants regarding their autonomy scores $t(35) = .049, P > .05$. Therefore, it can be concluded that gender did not have any statistically significant role in the students' autonomy who received text messaging for six weeks, so the second null hypothesis was not rejected.

Table 7

The Result of the Independent Samples T-Test for the Comparison of Males and Females

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Post-scores	Equal variances assumed	.632	.432	.049	35	.962	-.11	2.37
	Equal variances not assumed			.052	21.911	.959	-.11	2.23

The third research question sought to find how learners in the experimental group perceive the benefits and challenges of the use of MALL in EFL classrooms. To elicit learners' responses and their feelings about using MALL in their classrooms, a number of 7 open-ended questions were asked.

The first interview question looked into learners' previous experiences of using MALL (e.g., WhatsApp, Telegram, SMS text messaging) in the EFL classroom. Out of 37 learners, 32

had no previous experience in EFL studies, and 5 had experience using MALL in their EFL classrooms.

The second question sought to find more details about learners' feelings when using mobile devices to work on their English vocabulary. A number of 28 learners stated that using text messaging was useful; while 5 learners found it not practical, and 4 stated that they have no idea.

For the third question, 24 learners considered MALL as useful and beneficial, and 13 learners stated that the use of MALL is not helpful because they were concerned about the misuse of mobile phones. They also said that mobile phones are used for social or personal purposes, or for cheating instead of applying for educational purposes. Some stated that the use of MALL might be useful in writing classes.

The fourth interview question dealt with the learners' future use of text messaging for English learning. 19 participants stated that they felt text messaging would improve their foreign language learning skills, and the remaining ones said it would not improve, and it would definitely be faded away soon.

For the fifth interview question, a number of 27 participants in the experimental group stated that EFL classes using MALL are more attractive, exciting, and enjoyable; however, it depends on the content, the context, and the way it is being presented.

Considering the sixth question, a number of 20 learners stated that the use of MALL in EFL classrooms is more productive than without using it in the English class. They consider that due to the quick availability of the authentic materials from the World Wide Web, it can be used immediately to enrich group discussions. On the other hand, 10 learners did not agree that the use of MALL in EFL classrooms is more productive. They stated that technology could not be a replacement for the teacher because technology's impact relies on the appropriate selection, which aligns with the teaching and learning purposes.

The last interview question asked learners to talk about the problems facing while using text messaging in EFL classes. A number of 11 learners stated that there was no problem using text messaging in EFL classes. However, 26 learners talked about issues, such as the cost of sending messages that keep them from using text messaging as an instructional tool. Some believed that through text messaging, learners are not able to master or practice oral skills.

Nearly all learners had previous MALL experiences in EFL studies. They used mobile phones before, while in the classroom, and after class times to support their learning. Plenty of the participants found the use of MALL for EFL tasks and activities to be advantageous, exciting, fun, and productive. However, most of the learners were concerned about using MALL in EFL classes, as some of the learners perceived it as a distraction, as danger when replacing the teacher, or as a tool that was not enhancing oral skills. As a whole, it can be inferred that the overall perception was positive, except a few cases who were concerned about the misuse of the tool in educational contexts.

5. Discussion

The present study aimed to address learners' levels of autonomy regarding text messaging and find out their perceptions of mobile devices in the EFL classrooms in Iran. The first research question concerns the difference between learner autonomy of EFL learners exposed to text messaging as an instructional tool and learner autonomy of those exposed to the traditional instruction. Based on the results, learners of both groups (experimental and control) showed a statistically significant difference, considering the level of autonomy. Indeed, integrating m-learning with traditional instruction can improve learner autonomy.

The results are consistent with a study carried out by Nasr and Abbas (2018), which examined the role of MALL in improving learner autonomy in the EFL reading context among students of Najran University in Saudi Arabia. The findings show that the learners' LA is increased using MALL to take responsibilities and make decisions regarding reading materials. The results of this study totally correspond with Hazaea and Alzubi (2018) who state that MALL can motivate the modes of learners and autonomous learning in the EFL context, presuming that they are presented by directions on the teachers' contact hours and free time in order to provide more chances of success and motivate more learner autonomy.

The findings on the autonomy agree with those reported by Farangi, Kamyab, Izanlu, and Ghodrat (2017), which examined the impact of SMS on Iranian upper-intermediate EFL students' grammar learning. The findings indicated that the implementation of SMS had a major impact on Iranian EFL learners' grammatical knowledge; moreover, the learners' autonomy was enhanced in learning. The study's findings also align with what Leis, Tohei, and Cooke (2015) reported as an

improvement in the awareness of the benefits that mobiles can provide for EFL learning. Learners increased their learning outside the classroom in their private time and became more autonomous.

The second research question investigated whether gender had any statistically significant role in the students' autonomy who received text messaging. The results did not reveal a remarkable difference in the learner autonomy based on their genders in the experimental group. The findings of this study are in agreement with those reported by Lachane and Mazzocco (2006). They state that despite the differences between male and female learners, it can be concluded that autonomous learning strategy through technology is gender-friendly and engages learners' minds-on and hands-on-learning more than the conventional method. Although Abdel Razaq (2014) stated that there is a gap between the performance of learners, but the findings of the current study align with the results of the studies by Varol and Yilmaz (2010), and Mardjuki (2018) which stated that there is no difference significantly between the genders in learning activities and performances.

Considering the third research question, the interview results showed that the respondents, which are the EFL learners, perceived mobile devices as beneficial tools to improve the teaching and learning processes. It can be concluded that the use of MALL in learning contexts gives learners access to various rich resources, provides them diverse activities in English, facilitates their communication and interaction with their teachers and friends.

The outcomes of the third research question are in accordance with those reported by Ali, Mahmood, Anwar, Khan, and Hussain (2019). They made an attempt to examine the Pakistani's ESL learners' perceptions of MALL in English language classrooms, and the findings showed that the learners had shown a positive tendency toward applying MALL usage inside the ESL classrooms. Similarly, White and Mills (2014), based on survey on Japanese students, found that the learners' attitudes regarding the implementation of MALL in EFL setting is improving daily.

Consequently, this paper contributes in the fields of MALL and EFL by providing meaningful insights into the areas of learner autonomy and learners' perception in the Iranian higher-level context. The findings showed that using text messaging as an instructional tool allowed students to experience new learning methods, more flexibility, learning choices considering language content, learning space, and time, thereby improving their learning

autonomy. The findings showed the positive perception and satisfaction of the study participants in terms of using MALL in EFL classrooms. It is worth mentioning that although the first null hypothesis was rejected, because text had a statistically significant effect on learners' autonomy; however, the second null hypothesis was accepted to show that gender was not a remarkable variable in the performance of the learners.

6. Conclusion

The learner autonomy level depends on the different objective and subjective factors such as personality, age, educational system, etc. However, the main factor is the teachers and the learners' cultural background. This means that autonomy is idealism in some specific cultures, and the teacher has an important responsibility to improve it among the learners so that they can make a knowledgeable choice at various stages of the learning process. This central role of the teacher and some other factors, maintains the teacher-centered learning model at all stages. The current study had two main findings: 1) using text messaging as a medium to improve learner autonomy, and 2) gender did not have any role in the autonomy of the students who received text messaging during a period of six weeks.

The present paper led to an understanding of text messaging affects Iranian EFL learners' autonomy and their sense of connectedness. Texting is an inseparable aspect of learners' lives; thus, it is crucial for the educational community to know if text messaging can be used as an instructional tool to improve educational achievements and if it is useful to develop and enhance learners' sense of autonomy. Based on the findings, it can be concluded that teachers and instructors should investigate ways to effectively incorporate learners' mobile phones and MALL methodologies in their classrooms. The useful form of implementing any instrument in language learning requires considerate application of L2 pedagogy, which helps learners to be no longer confined to the classroom environment; instead, they advantageously have improved their understanding outside the classroom.

It can be considered essential for the language teachers to implement and effectively use mobile learning in the class and model their use for learning in general, hoping that they will use their mobile phones outside the classroom. Helping learners to be aware of their natural and preferred learning style is useful, since it helps in motivating them to move beyond their comfort

zone and try out various approaches to learning. Viberg and Grönlund (2012) stated that due to insufficient considerations of students' learning styles and strategies in m-learning, more research studies are essential to investigate the area.

The findings also revealed that it is essential to develop new learning approaches and techniques in Iranian EFL exposures due to technology's insufficiency. The inclusion of MALL in an educational context will be inexpensive yet influential in creating qualified results for the teachers and learners as well. The time and place flexibilities will allow the learners to be free from anxiety and mindful in their performances, so the learning process and monitoring will be more straightforward.

The findings of this study revealed that the proper use of mobile-related technologies inside and outside EFL classrooms facilitate the process of teaching and learning and would be helpful for the learners to learn the language better and gain information in depth. Language teachers are able to create an appropriate environment for teaching by using technology. However, it should be mentioned that most of the Iranian teachers do not have the required skills for the implementation of MALL in EFL classes. Based on Tai and Ting's (2011) suggestion, educational organizations should be responsible in providing EFL teachers with information and communication technology (ICT) skills for successful MALL implementation in their teaching practices.

The main focus of the current study was on the vocabulary learning, SMS, and learner's autonomy, therefore, further studies can be done on the role of SMS in other learning skills. Since, the pre-intermediate learners were the participants of this study, more research is suggested to be implemented with other proficiency levels for the purpose of comparison and wider effect measurements. The main focus of this study was on the use of SMS in educational context, while implementing other types of educational electronic applications can be the point of more studies.

Paper 3

Title of the Paper: The Effect of Text Messaging on EFL Learners` Lexical Depth and Breadth

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The Effect of Text Messaging on EFL Learners' Lexical Depth and Breadth

Abstract

Using technology in the classroom context can be an effective way to learn a foreign or second language. Vocabulary is considered one of the important skills for identifying a learner's performance in various academic and non-academic contexts. The present paper investigated the effect of text messaging on learners' lexical knowledge and vocabulary size by using mobile learning (m-learning). After the administration of an Oxford Placement Test, a total of 37 EFL learners were selected as the sample of the study. Before the treatment process, a word association test (WAT) and the updated vocabulary level test (UVLT) were administered as pre-tests. The learners received six vocabulary items selected from their coursebook through SMSs three times a week in addition to the in-class instruction. After finishing the treatment process, the WAT and the UVLT tests were administered again as post-tests to assess the learners' achievement and the effectiveness of the treatment. Since the normality of data distribution was not confirmed, the Wilcoxon signed-rank test was run for mean comparisons. The findings showed no meaningful difference between the pre-tests and post-tests regarding the vocabulary depth scores, while there was a statistically significant difference based on vocabulary breadth. Therefore, it can be claimed that text messaging via m-learning had a significant impact on learners' vocabulary breadth. Curriculum developers and EFL teachers can benefit from the findings of the current study by considering the significance of text messaging for teaching different aspects of lexical knowledge.

Keywords: m-learning, text messaging, vocabulary breadth, vocabulary depth

Introduction

Due to the rapid development of science and technology, distance communication utilizing technology, especially wireless networks, has rapidly become ubiquitous. Mobile phones, as part of the current technologies and as multifunctional instruments, have become essential parts of our daily lives. The application of mobile technology has changed the way people communicate and interact with each other, as well as their perspective of education (Liaw, Hatala, & Huang, 2010; Liu & Chen, 2008). The widespread availability of these up-to-date devices with competitive

prices has altered the process of mobile learning (m-learning) dramatically in many different ways (Farangi, Kamyab, Izanlu, & Ghodrat, 2017).

As stated by Kukulska-Hulme (2013), mobile learning involves using any portable educational devices, such as portable radios, cell phones, audio cassettes, etc. in educational settings. Based on Alexander's (2004) definition, m-learning is viewed as every sort of learning that occurs while mediating via a mobile device and has accepted the legitimacy of 'nomadic' students. The fast growth of the English language learner (ELL) population should cause a modification in academic instruction and, therefore, the manner educators take into account the classroom context. ELLs create a heterogeneous cluster with a variety of racial, ethnic, cultural, linguistic, and socio-economic backgrounds, as well as their strengths and weaknesses. The cultural and linguistic variations affect the way ELLs learn the language and its related skills and sub-skills. Accordingly, preparing learners for their future in society requires teaching them how to create personal meaning by employing the knowledge they can use to communicate, learn, analyze, give a reason, evaluate, and be conveniently flexible by being able to easily adapt to various communicative situations in a wide range of settings.

Through the growing application of communicative approaches in the teaching process, the need for an appropriate word list becomes evident in order to be accessible when learners make an attempt to communicate. Lexical knowledge is a substantial part of a foreign language. Without adequate lexical knowledge, communicative interactions can be hard to achieve. When individuals try to transfer a message, they may be capable of sending it with inadequate knowledge of structure, but it seems quite problematic to communicate a message with a lack of an appropriate level of basic lexical knowledge (Agdam & Sadeghi, 2014).

There are multiple dimensions for lexical knowledge ranging from the lowest degree of knowledge (unfamiliar words) to the highest degree of perceiving the word (familiar words and their meanings). Paribakht and Wesche (1993, as cited in Mehrpour & Montasseri, 2019) categorize lexical knowledge into the following steps:

1. Learners may have never faced the word before and cannot identify the word;
2. Learners may have heard the word but cannot define it;

3. Learners identify the word considering its context of use or voice tone, but their understanding of its meaning is not clear;
4. Learners understand the word meaning in general but are not able to explain its meaning clearly;
5. Learners can identify different meanings of the word and are able to use it fluently (p. 104).

Based on the findings of a large number of studies (Chapelle, 1998; Nation, 1990; Qian, 2002), lexical knowledge is a multidimensional construct (Henriksen, 1999; Kieffer & Lesaux, 2012b; Read, 2000; Schmitt, 2014). Qian (2002) presents four distinctive classifications of lexical knowledge: (a) vocabulary breadth, (b) vocabulary depth, (c), automaticity of receptive-productive knowledge, and (d) lexical organization. However, Qian (1999), Wesche and Paribakht (1996), and Read (1989) acknowledge that lexical knowledge requires encompassing at least two aspects, i.e., vocabulary size or breadth and vocabulary quality or vocabulary depth. It should be mentioned that vocabulary size or breadth refers to the number of words a student knows, and vocabulary depth reveals how profoundly a student has knowledge of a word (Qian, 2005; Qian & Schedl, 2004).

To learn the new vocabulary, different types of instructional aids are available to the students, among which mobile devices are one of the most popular and influential ones. Mobile phones can be considered helpful devices for learning and teaching because of their inclusive features such as "accessibility, personalizability, and portability" (Saran & Seferoglu, 2010, p. 253), the physical aspects, input capabilities, output capabilities, the storage capacity and retrieval, the speed of the processor, and the "low+ error rates" (Alzu'bi & Sabha, 2013, p. 179).

Literature Review

Through reviewing the literature, it is noted that some of the studies reporting the application of mobile devices in vocabulary learning, could be categorized as the use of SMS/MMS (Alemi, Sarab, & Lari, 2012; Çavuş & İbrahim, 2009; Hayati *et al.*, 2013; Hu, 2013; Zhang, Song, & Burston, 2011), the use of email (Thornton & Houser, 2005), the use of some programs developed by individual researchers (Başoğlu & Akdemir, 2010; Chen & Chung, 2008; Stockwell, 2007, 2010), and the use of other mobile features (Ağca & Özdemir, 2013; Dağdeler, Konca, & Demiröz, 2020; Liu & Chen, 2014). These studies have mainly suggested the positive effects of mobile

device applications during the learning process. It was shown that the learners in experimental groups receiving instruction via mobile technology were more successful than those in the control groups studying through conventional methods (Başoğlu & Akdemir, 2010; Hayati et al., 2013; Liu & Chen, 2014; Lu, 2008, Zhang *et al.*, 2011). Considering the learned vocabulary retention, some studies reported that there was not a notable difference between groups (Lu, 2008; Zhang *et al.*, 2011) while others revealed that the use of SMSs provided retention of target vocabularies (Alemi *et al.*, 2012; Saran, Seferoglu, & Cagiltay, 2012).

Lexical Knowledge

The lexical knowledge is one of the main readers' variables that identifies language learners' performance on different kinds of tests. As Shen (2008) points out, vocabulary is a key component in language, and vocabulary learning has gained much attention in the English language teaching (ELT) research field. According to Schmitt (2008), lexical knowledge plays a major role, and one thing that learners, trainers, syllabus designers, and researchers can come to a consensus on is that vocabulary learning is an indispensable part of mastering an L2.

Theoretically, distinguishing lexical knowledge may not be clear-cut. A prominent framework for lexical knowledge was presented by Richards (1976), considering the seven dimensions of register, associations, frequency, form, meaning-concept, position, and meaning-associations. Later, Nation (1990) suggested eight types of lexical knowledge, determined both for productive and receptive knowledge, consisting of spoken form, written form, concept, associations, grammatical patterns, collocations, frequency, and appropriateness. Chapelle (1998) proposed four aspects of lexical knowledge: vocabulary size, the knowledge of word features, organization of lexicon, and vocabulary processes. Henriksen (1999) distinguished three aspects of lexical knowledge: knowledge of partial to precise, the depth of knowledge, and receptive to productive usability, and Qian (2002) classified four dimensions using the existing frameworks: vocabulary depth of knowledge, breadth of knowledge, automaticity of receptive-productive knowledge, and lexical organization. Despite a lack of agreement on the multidimensional nature of vocabulary knowledge, such a claim that this knowledge should have only two basic features, breadth (or size) and depth (or quality), appears to have been generally accepted (Anderson & Freebody, 1981; Qian, 1999, 2002; Read, 1993; Wesche & Paribakht, 1996). Alderson and Freebody (1981) wrote that the breadth aspect of lexical knowledge refers to the number of words

that a speaker knows, while on the other hand, vocabulary depth refers to the understanding or quality of the words. The effect of these aspects of lexical knowledge has been mainly investigated in studies in the reading comprehension area (e.g., Kaivanpanah & Zandi, 2009; Nassaji, 2004, 2006). Based on Aviad and Laufer (2013), lexical knowledge can be measured both qualitatively and quantitatively regarding depth and breadth of knowledge and strength of knowledge of meaning as well.

The depth aspect of vocabulary deals with paradigmatic and syntagmatic relations, which involve synonyms, superordinates, and collocations (Schoonen & Verhallen, 2008). It is the quality of lexical knowledge that shows the dominance of students over each vocabulary item or the effectiveness of word formation in the student's mental lexicon. Lexical depth deals with the aspects that are connected to the improvement of literacy skills. According to Schmitt (2000), the depth of vocabulary refers to syntactic attributes, semantic representation, possible collocations, and pragmatic rules of the words or concepts. Studies have indicated the intricacy and multidimensionality of lexical knowledge have approached the construct of depth in a number of different ways (Read, 2004). Although this aspect of lexical knowledge has not received adequate attention, it is significant, particularly for those who are thinking in two languages simultaneously.

On the contrary, vocabulary breadth refers to the quantity of the words or the surface-level knowledge of many words that learners have at their disposal to use both productively and receptively (Read, 2000). This aspect of lexical knowledge has been defined as an individual's vocabulary size or the approximate number of lexical items that a person knows (Nassaji, 2004; Qian, 2002; Zareva, 2005).

It can be observed that vocabulary depth and breadth are considered to be two different terms; however, they share a close empirical and conceptual relationship. Qian (1999, 2002) stated that the correlation between the vocabulary breadth and depth of L2 university students were .82 and 0.70 accordingly. In another study, Vermeer (2001) found a correlation of .85 for the depth and breadth of vocabulary among Dutch monolingual students at the kindergarten level and a correlation of .76 among their bilingual classmates; thus, she discussed that a significant difference between vocabulary depth and breadth could not be observed. Nurweni and Read (1999) stated that vocabulary breadth and depth might be connected if the students are at advanced proficiency levels, while the difference can be observed at lower proficiency levels. Such high correlations

between these two dimensions of lexical knowledge show that vocabulary breadth and depth facilitate one another (Li & Kirby, 2015). Li and Kirby (2015) also stated that at the beginning of language development, few words could be learned based on their basic meanings. Nevertheless, with increases in the learners' level of experience, the learned words can be explained in more details and associated with the vocabulary in various contexts to contribute to the learning of new words (Haastrup & Henriksen, 2000; Ma, 2009; Perfetti, 2007).

M-Learning in Education

Krashen (1989) predicted that a set of instructional aids aimed at language acquisition would motivate acquisition at the fastest possible rate. This language acquisition device would be very powerful and effective in the future due to the progress and enhancements of second language learning and acquisition tools. In this regard, the 'chalk and talk' classroom, printed books, and methods used traditionally can be compared with the current strategies in language acquisition through the optimal use of technology (Govindasamy, Yunus, & Hashim, 2019).

Implementing mobile technology in teaching and learning processes affected the paradigms of time, place, and the ways in which the school would be delivering the instruction. Such an aspect of technology would increase the considerations towards learning materials; it can improve learning and raise learners' motivation for a lifetime (Kristoffersen & Ljungberg, 1998). Mobile learning is considered one of the extended versions of e-learning. One of the practical advantages of m-learning is that it is accessible for students free from time and place restrictions. M-learning acts as a facilitator that supports the performance of students in learning environments. The flexibility of m-learning as it provides education for students who are in the process of learning at their own speed can be considered as another advantage. M-learning provides two-way communication to include the shy students who are unwilling to communicate more in the classes as well as the students who can share ideas with the teachers and peers easily. Teachers can use m-learning to send instructions to a large group of students in any academic context. Finally, m-learning is self-disciplined and self-motivated, which supports learning outside of time limitations and place restrictions (Alalawan, Alzahrani, & Sarrab, 2013).

M-learning provides a distinct opportunity for both learners and teachers. The teachers greatly shorten the effort and time needed for organizing and repeating the lessons, while learners are able to repeat the lessons at any time and as often as they want. It should be mentioned that e-learning can take place inside and outside the classrooms, and especially that m-learning is popular among younger learners who grew up using mobile devices and who could be eager to keep learning outside the borders of a traditional classroom.

M-learning and Vocabulary Learning

There are several language-related experiments in m-learning literature that have integrated the recent innovations of mobile phone technologies into their pedagogical practices (e.g., Comas-Quinn, Mardomingo, & Valentine, 2009; Hayati et al., 2013; Klimova, 2020; Mahdi, 2018; Nah, White, & Sussex, 2008; Stockwell, 2007; Todd & Tepsuriwong, 2008; Wang, 2017). The learning of vocabulary can be facilitated by technology in general and mobile devices in particular.

Govindasamy *et al.* (2019) made an attempt to examine the effectiveness of mobile phones to find the meaning of vocabulary in comparison to the conventional way of using a printed dictionary. To collect the required data, vocabulary pre- and post-tests were performed. The results revealed that mobile phones improved learners' knowledge in deeper vocabulary learning and vocabulary meaning compared to the printed dictionary. Wang and Shih (2015) implemented some of the applications of vocabulary learning in their study with 93 Mandarin-speaking students in northern Taiwan and found that the results from the experimental group were remarkably better than from the control one, which employed the usage of traditional printed materials. WhatsApp, as an example of a functional application, gives users the ability to communicate and exchange texts freely, carry on individual conversations, and make calls. This famous application is accessible on all mobile platforms, such as Android, IOS, Symbian, Windows Mobile, etc.

In another research, Wu (2015) produced Word Learning-CET6, a mobile application, for teaching vocabulary to Chinese EFL learners. The experimental group received instruction using the application, while the control group was instructed to study and learn the lexicon themselves. The post-test scores showed a significant result between the two groups in favor of the experimental group.

Texting in Education

One of the extensively used characteristics of mobile phones that was initially under consideration in various research studies was the Short Message Service. SMSs as a communication tool transfer short text messages up to 160 characters by means of the Global System for Mobile Communication (GSM) enabled on mobile phones. This form of text messaging is one of the famous communication instruments, with 2.4 billion users around the world (Short Message Service, 2008). Many young people exchange SMSs with friends, with an average message length of 71 characters (Grinter & Eldridge, 2003). The term SMS illustrates both the messages and the medium (Kasesniemi & Rautianen, 2002).

The process of teaching has changed over the years. The engagement of the learners in their learning process has increased, and essential opportunities have been given to them to explore the solutions. The usage of texting helps learners build foundational reading skills like phonological awareness and word recognition. Tomita (2009) states that text messaging motivates learners to write more that gives them additional communication opportunities. Some adversaries believe that texting can be motivational for those learners with low-level writing abilities; however, research reports have indicated that learners have the ability to distinguish between formal and informal writing.

In addition, text messaging provides learners with the ability to participate in silent communication (Katz & Aakhus, 2002). In this type of communication, there is no need for the third party to know what any two other interlocutors are discussing, except when content is intentionally made known to a third party. Opinions are negotiated via text interlocutors without much interference or noise. Consequently, learners naturally find it more comfortable to use text messages, specifically if they find themselves in conditions that are not able to make a call (North, Johnston, & Ophoff, 2014). Therefore, learners use text messaging conveniently, because it is quick, cheap, and affordable for transferring information (Mahmoud, 2013).

Many research studies have made a comparison between SMS-based vocabulary teaching and traditional methods of instructions. For instance, Zhang *et al.* (2011) and Lu (2008) tried to find the comparative effects of SMSs and printed materials. The findings of their research reports revealed that the group that received the SMSs performed better than the control group, in which

the participants received printed materials, during the post-test. For the same reason, Suwantarathip and Orawiwatnakul (2015) carried out a study to compare the effectiveness of teaching and practicing new words inside of the class via drills through SMSs for six weeks. The findings showed a positive and significant performance among the learners in the experimental group in comparison to their counterparts.

Hayati *et al.* (2013) examined the effects of teaching idioms to Iranian EFL learners. Participants were divided into three groups that were receiving various types of instruction. One of the groups, the self-study one, received the idioms along with the definitions and examples via printed materials. In the second group, the experimental one, the idioms were sent through SMSs, including four idioms, along with their meanings and sample examples. Finally, the last group, the control one, received short texts rather than sentence examples and the definitions. The findings revealed that all three groups had remarkably different scores. The group that received the SMSs achieved the highest marks, and those with self-study instruction received the lowest marks. Moreover, learners stated that mobile phones and SMSs were effective and desirable teaching tools.

In some research studies, the researchers compared the use of SMS with traditional approaches for teaching vocabulary to see which was better for learners. Tabatabaei and Goojani (2012) carried out a mobile phone-based study to investigate the effects of SMS on L2 English vocabulary acquisition. The participants wrote sentences between five and six words, which were sent through SMSs to their teacher and fellow students. The results showed that the experimental group that received SMSs significantly outperformed the control group on a vocabulary post-test. Both learners and their teachers indicated positive attitudes towards using SMSs for vocabulary learning.

Although a great number of studies showed that using SMSs and other applications on mobile phones are effective for vocabulary learning, the feasibility of such devices is limited. For example, SMSs can be pricey (Çavuş & Ibrahim, 2009), or computer applications need to be adjusted for mobile phones, which may negatively affect their quality (Thornton & Houser, 2005). Fortunately, mobile phone applications, which are popular and effective, can considerably facilitate mobile-learning activities. In addition, mobile-learning applications are beneficial to language instruction (Godwin-Jones, 2011).

Regarding the issues mentioned above, educators and researchers have attempted to incorporate texting into language teaching and self-regulated learning treatments to help L2 learners develop various skills (Cavus & Ibrahim, 2009; Hayati, Jalilifar, & Mashhadi, 2013; Kennedy & Levy, 2008). Few research studies have examined the educational usage of mobile devices in learning vocabulary deeply (Browne & Culligan, 2008; Kennedy & Levy, 2008; Lu, 2008; Saran *et al.*, 2012, Stockwell, 2008, 2010; Thornton & Houser, 2005; Wong & Looi, 2010; Zhang *et al.*, 2011). Considering Qian's (2002) classification of lexical knowledge, the current study will focus on two out of the four dimensions, i.e., the breadth and depth of Iranian EFL learners' vocabulary items acquired with the use of text messaging. This study is part of a larger project of the researchers, following the line of two previous studies. In the first study, we investigated the reflection of vocabulary implementation through educational text messaging on EFL learners' reading skills. The results of the study revealed no meaningful discrepancy between the experimental and control groups based on their reading scores (Behforouz & Frumuselu, 2021). In the second study, the efficiency of text messaging as an EFL instructional tool for learner autonomy and their perception toward the use of mobile-assisted language learning was investigated. The findings revealed that there were significant differences between the experimental and control groups' mean learner autonomy scores and learners showed positive views towards MALL and technology-based language learning (Behforouz & Frumuselu, 2020). Considering the unavoidable relationship between lexical knowledge and reading comprehension discussed in many studies (Al-Khasawneh, 2019; Jamalipour & Farahani, 2015; Kamal, 2019; Karakoç & Köse, 2017; Rydland, *et al.*, 2012; Zhang & Annual, 2008), this study aims to analyze the effect of text messaging on EFL learners' vocabulary depth and breadth. Few studies could be found in the literature that applied SMS text messaging to pre-teaching vocabulary to EFL learners in Iran. There is a gap in the literature and the current study is expected to fill it.

It should be mentioned that the participants of the current study had no connection, a poor connection, or sometimes lacked a connection to the internet. This made it difficult for the students to receive the vocabulary items on a regular basis, which may have led to significant negative effects on the results. Still, they had access to their mobile phones, and sending the vocabulary by SMS was manageable for the researchers and an appropriate channel of communication for the

students. Therefore, the researcher decided to use SMS text messaging to implement the vocabulary items as the treatment.

The current paper aims at answering the following questions:

RQ1: Does text messaging have a statistically significant impact on Iranian EFL learners' vocabulary depth?

RQ2: Does text messaging have a statistically remarkable impact on Iranian EFL learners' vocabulary breadth?

Methodology

This section presents the method used to design of the study and the procedure used to collect the required data. The study aimed to investigate if text messaging had any statistical significance on Iranian EFL learners' vocabulary depth and breadth. To this end, the comprehensive procedure including sampling, instrumentation, data collection, and data analysis is explained in detail.

Participants

A total of 37 learners within the age range of 21 to 26 years old were the final participants of the study. They were university students with different majors (Chemistry, Computer Science, Civil Engineering, and Electrical Engineering) studying general English at the Islamic Azad University-South Tehran Branch. To measure the homogeneity of the sample population on the basis of their English proficiency level, the first step was the administration of the Oxford Placement Test (OPT). Considering the OPT scale, those participants who scored from 28 to 36 were selected as the research sample of the present study. Based on the OPT scale, scores from 28-36 are regarded to be at the pre-intermediate level of language proficiency. They were Persian native speakers and all of them had a mobile phone to use for the study. It should be mentioned that the students were taking a reading comprehension course in the same semester as part of their regular English curriculum.

Design of the Study

This study is an experiment with a one-group pre-test post-test design. It is worth mentioning that learners received 108 vocabulary items through SMS text messages three times a week for six weeks. Thus, they received six vocabulary items per session.

Instruments

Oxford Placement Test

In order to gather sufficient information, the following tools were used, respectively. An OPT was administered to measure participants' ability to communicate in English. This test was used in this study since it is easy to administer based on produced doctorate theses and articles in Iran, and it is well-known among academics. The OPT is a quick way of assessing the approximate level of learners' knowledge of English grammar and usage. The allocated time to complete the test was 55 minutes. This test consists of two parts with 60 multiple-choice items and cloze tests. The first part consists of 40 questions, and the second part includes 20 questions. Participants were instructed to read the items and then choose the correct answers among the choices. The incorrect answers did not result in negative points. Based on the norms of the test, the participants' scores were ranked from beginner to advanced levels. Table 1 shows the OPT scale.

Table 1

Oxford Placement Test Scale

Beginners	Elementary	Lower-Intermediate	Upper-Intermediate	Advanced	Very Advanced
1-17	18-27	28-36	37-47	48-55	56-60

Word Associate Test (WAT)

The second instrument used for this study was a word associate test (WAT), which is a well-known method of measuring learners' vocabulary depth. The WAT devised by Read (1993, 1998) estimates L2 learners' depth of lexical knowledge based on three relationships among mental lexicon words: paradigmatic (meaning), syntagmatic (collocation), and polysemy. It includes 40 items, including one stimulus word (an adjective) and two boxes, one box contains four adjectives that are either synonyms or polysemous with the stimulus word, and the other contains nouns that can collocate with the stimulus word. There are always four correct options for each item. Read (1993) reported the reliability of the test as 0.93; later, Qian (1999, 2002) and Nassaji (2004) estimated above 0.90. To score the WAT, one point is awarded for the correct match of each word; therefore, 160 is the highest score. Figure 1 is an excerpt from this test.

Sudden <input type="checkbox"/> beautiful ■ quick ■ surprising <input type="checkbox"/> thirsty	■ change <input type="checkbox"/> doctor ■ noise <input type="checkbox"/> school
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Figure 1. A Sample Item from the WAT (Read, 1998)

The Updated Vocabulary Level Test (UVLT)

The updated vocabulary level test (UVLT) was the third instrument of this study to assess the learners' vocabulary size/breadth. The UVLT is probably the commonly used instrument to assess L2 learners' lexical knowledge (Read, 2000). It was initially created by Nation (1983) and later modified by Schmitt, Schmitt, & Clapham (2001) to identify how well learners know useful English words and the extent to which learners could distinguish the form-meaning relations of words at four levels of word frequency (2000, 3000, 5000, 10000) and an academic vocabulary level. These four levels of frequency are based on the General Service List (GSL) (West, 1953), Kučera and Francis (1967), and Thorndike and Lorge's (1944) list, while the other section (academic) is based on Xue and Nation's (1984) University Word List.

The researchers of the present study used the UVLT developed and validated by Webb, Sasao, & Balance (2017) at five levels of word frequency (1000, 2000, 3000, 4000, and 5000). It is worth noting that this test has the potential to measure all the levels together or measure the levels individually. There are 10 clusters with six words, including distractors and keys along with three definitions in each level. Participants are asked to put a checkmark (✓) under the word corresponding with each meaning.

Unlike multiple-choice tests, the UVLT decreases the percentage of guessing the answer because the test shows the same type of vocabulary, so there are not any syntactic clues for the correct responses. The test-takers should match three words to their definitions. To score the UVLT, a correct check earns one point for each word; therefore, the highest score is 150 points. Regarding the abovementioned information, the test used in the present study was the modified for use as a vocabulary size test or a breadth of lexical knowledge test. Figure 2 shows a sample item from the UVLT.

	game	island	mouth	movie	song	yard
land with water all around it		✓				
part of your body used for eating and talking			✓			
piece of music					✓	

Figure 2. An Example from the UVLT (Webb, Sasao, & Balance, 2017)

Procedure

This study was conducted during the reading module of the fall semester in the 2019-2020 academic year, over a period of an 18-session treatment lasting six consecutive weeks. The participants received SMSs three times a week with vocabulary items related to the content of their coursebook. 108 relevant vocabulary items were selected and they received six vocabulary items via SMS every session. The researchers used text messaging through m-learning to improve their students' vocabulary depth and breadth.

To collect data for the present study, the researcher went through the following procedure: After the administration of an Oxford Placement Test (OPT), 37 undergraduate Iranian EFL learners aging from 21 to 26 studying at the Islamic Azad University-South Tehran Branch were selected as the sample of the current study. Since this study is a part of a larger study, the initial population consisted of 88 participants. Based on their scores on the OPT scale, the participants were placed in the pre-intermediate level.

The second step was devoted to the administration of the UVLT and the WAT to assess the learners' breadth and depth of lexical knowledge. Both tests were administered during one session. Based on Schmitt et al. (2001), the allocated time of the UVLT was 31 minutes; as Qian (1999, 2002) and Nassaji (2004) stated, the time for completing the WAT was 30 minutes. However, in this study, the time allocated for completing both tests (UVLT & WAT) was 70 minutes. The participants were told to select the option that best described the meaning of the stem word in the absence of some context, and they were supposed to select the option that matched the meaning of the stem word and do this for all the items. It was mentioned that their selection should not be random, and they should choose precisely. There were no negative points for incorrect

answers. The UVLT and WAT tests were administered to all the participants before the beginning of the treatment.

After administrating the WAT and UVLT as pre-tests, the treatment procedure began. A list of vocabulary words from their coursebook and also the number of words from the updated vocabulary level test appropriate for pre-intermediate learners were selected and delivered to them via SMS, six items in an SMS three times a week. They received SMSs containing vocabulary items for 18 sessions over six consecutive weeks. Each word was used in one short sentence, with a synonym and a single-word Persian translation at the end of the sentence in parentheses. The SMSs were delivered to a group of 37 learners at once.

At the end of the experiment, the WAT and the UVLT tests were given as post-tests to see the effect of text messaging on the depth and breadth of their lexical knowledge, and the scores of pre-test and post-test were compared employing the nonparametric Wilcoxon signed-rank tests.

Data Analysis and Findings

In this section, the analysis and the interpretation of data collected over a period of six weeks at the Islamic Azad University-South Tehran Branch are presented. After collecting the required data from the research instruments, descriptive analysis, focusing on the basic features of the data, and inferential analysis, the researched attempted to reach conclusions that extended beyond the immediate data.

To have a homogenized population based on the English proficiency level, the OPT was conducted. A number of 37 students received similar OPT scores, ranging from 28 to 36 (pre-intermediate level). Table 2 shows the descriptive statistics of the homogenized participants in which the mean and the standard deviation of the homogenized participants were 31.66 and 2.22, respectively. The standard deviation means that most of the scores are close to the average; therefore, the participants' scores show that they had a homogenous general English proficiency level. Since the participants of this study were participating in another study, 74 of them were selected primarily, but later on, for the purpose of the current study, 37 pre-intermediate students were selected as the sample.

Table 2

The Descriptive Statistics of the Oxford Placement Test

	N	Minimum	Maximum	Mean	Std. Deviation
OPT Homogenized	37	28.00	36.00	31.35	2.54
Valid N (listwise)	37				

The first research question investigated whether text messaging via m-learning could have any statistically significant effect on the learners' vocabulary depth. Before testing this research hypothesis, it was necessary to check whether the data were normally distributed. Therefore, a One-Sample Shapiro-Wilk test was run. Table 3 below displays the results of the One-Sample Shapiro-Wilk test.

Table 3

One- Sample Shapiro-Wilk Test of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Depth_Pre	.900	37	.003
Depth_Post	.903	37	.004

As indicated in Table 3, the normality of data distribution was not confirmed ($P < .05$). It means that the data were not normally distributed; therefore, a nonparametric test should be used. As a result, the nonparametric Wilcoxon signed-rank test was used for mean comparison. Table 4 shows the result.

Table 4

Analysis of the Pre-test/Post-test based on Depth Scores

	N	Min	Max	Mean	SD
Depth_Pre	37	64.00	87.00	73.189	7.615
Depth_Post	37	64.00	88.00	73.243	7.646
Valid N (listwise)	37				

Table 4 reveals that mean of the post-test was higher than the mean score of the pre-test ($M_{post}= 73.24 > M_{pre}= 73.18$). Table 5 below reveals the analysis of the Wilcoxon signed-rank test.

Table 5

Analysis of Wilcoxon Signed-Rank Test Based on the Depth Scores

	Depth_Post - Depth_Pre
Z	-1.000 ^b
Asymp. Sig. (2-tailed)	.317

The Wilcoxon signed-rank test revealed no statistically meaningful discrepancy between the pre-test and post-test of the depth scores ($Z = -1, p = 0.317$). Thus, text messaging via m-learning did not have any statistically significant effect on learners' vocabulary depth.

The second question of this study sought to investigate whether text messaging via m-learning could have any statistically significant effect on learners' vocabulary breadth. Before testing this research hypothesis, it was necessary to check whether there was a normality of the data distribution for the pre-/post-test scores. To do this, the researchers conducted a One-Sample Shapiro-Wilk test. Table 6 below displays the results.

Table 6

One- Sample Shapiro-Wilk Test of Normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Breadth_Pre	.940	37	.048
Breadth_Post	.875	37	.001

As indicated in Table 6, the normality of data distribution was not confirmed ($P < .05$). It means that the sample data was not drawn from a normally distributed population. Therefore, the nonparametric Wilcoxon signed-rank test was used for mean comparison. Table 7 below shows the results.

Table 7

Analysis of the Pre-test/Post-test of the Breadth Scores

	N	Min	Max	Mean	SD
Breadth_Pre	37	66.00	84.00	74.135	5.266
Breadth_Post	37	69.00	92.00	76.108	6.393
Valid N (listwise)	37				

According to Table 7 above, the mean score of the post-test was higher than the mean score of the pre-test ($M_{post} = 76.10 > M_{pre} = 74.13$). To analyze further, a Wilcoxon signed-rank test was conducted.

Table 8

Analysis of the Wilcoxon Signed-Rank Test Based on the Breadth Scores

	Breadth_Post - Breadth_Pre
Z	-5.005 ^b
Asymp. Sig. (2-tailed)	.000

The test showed a statistically meaningful difference between the pre-test and post-test on the learners' vocabulary breadth scores ($Z = -5, p < .05$). Therefore, the results enabled the researchers to claim that text messaging via m-learning had a statistically significant effect on the learners' vocabulary breadth. This means that the use of text messaging increased the learners' vocabulary size.

Discussion

Since the process of learning vocabulary is one of the substantial features of language teaching, the present study addressed Iranian EFL learners' breadth and depth of lexical knowledge via the use of m-learning text messages.

The findings of this study revealed the effects of text messaging via m-learning on EFL learners' lexical knowledge in general, and breadth in particular. Based on the results related to the first research question, no significant differences were found between the learners' pre-test and post-test scores on the WAT. This may lead to the conclusion that text messaging via m-learning

did not improve learners' depth of lexical knowledge. The Iranian EFL learners' lack of improvement in vocabulary depth may have several causes, which will be discussed below. Remembering vocabulary items sent via SMS may be possible for a short period of time, but the effects may not be long lasting, so the post-test employed after the six-week treatment did not reveal encouraging results in this sense. In contrast, if weekly tests were to be collected, better results and performance may be expected in a shorter term. Additionally, we believe that more practice exercises related to the vocabulary items in communicative situations should have been employed in order for the learners to acquire them more efficiently. In this sense, the SMS tool was used as a one-way form of communication, which is coming from the teacher side only. As there were no activities to foster teacher-student or student-student communication, the results did not reveal visible improvement in the learners' vocabulary quality of understanding. The words and the definitions that can be sent by SMSs are limited, and this might be problematic for students who have lower proficiency levels (beginner, elementary, and pre-intermediate levels) in the EFL context because they would need further support to develop their lexical knowledge.

As mentioned earlier, this study is a part of a larger one. The findings of the previous study carried out by Behforouz and Frumuselu (2021) showed that vocabulary learning via short messages did not affect Iranian EFL learners' ability to comprehend pre-intermediate-level texts. This is in line with the studies carried out by Li and Kirby (2014) and Rahman, Iqbal, and Zanal (2019) which stated that vocabulary depth can contribute to and predict reading comprehension improvement.

Thus, the findings of this study based on the results of vocabulary depth are consistent with Alemi et al. (2012), who examined the impact of texting on Iranian learners' vocabulary detainment and learning. They found no significant difference between the groups on the pre- and post-tests. However, the results are not in line with the findings of several research studies (Lu, 2008; Saran & Seferoglu, 2010; Zhang *et al.*, 2011) in which the experimental groups received the materials by MMS or SMS, while the control group continued with a traditional style of material delivery and they reported substantial benefits and gains in terms of vocabulary acquisition. Therefore, further investigation is needed in order to elaborate on this aspect and find the appropriate methodology and types of materials to foster interactions and enhance learners' vocabulary deep learning. Analyzing this tool in a different context with different types of students coming from

other backgrounds could lead to contrasting findings, so employing a variety of methods and analyzing learners' reactions and vocabulary acquisition should be vital for using SMSs as an educational tool effectively.

The second research question sought to investigate whether text messaging via m-learning had any statistically significant effect on the learners' vocabulary breadth. The results of the Wilcoxon signed-rank test for the breadth scores show a statistically meaningful discrepancy between the breadth scores on the pre- and post-tests. It means that the learners' vocabulary size improved significantly after the treatment. Indeed, using SMS as an educational tool has had a positive impact on the learners' lexical knowledge. The difference suggests that there was an improvement in the performance of the participants in terms of their vocabulary breadth before and after the treatment. Although there are different perspectives on the proper threshold level, Sutarsyah, Nation, and Kennedy (1994) suggested a level of 4,000-5,000 word families, while Coady et al. (1993) proposed an explicit understanding of the words at the level of 3,000 word families. The current results are encouraging and show positive effects in this sense.

The findings related to the second research question based on vocabulary size are in line with many previous research studies. Motallebzadeh and Ganjali (2011) conducted a study in a university context in which the experimental group received some vocabulary through short messages, while the control group received paper-based instruction. The results of the study revealed that the participants of the experimental group showed better performance on the vocabulary test. Some other research studies were conducted by Başoğlu and Akdemir (2010), Liu & Chen (2014), Lu (2008), Rahimi & Miri (2014), Saran *et al.* (2012), Wu (2015), and Zhang *et al.* (2011) that are in line with the findings of this study. They investigated the role of mobile applications, SMS, and mobile systems in vocabulary learning, and the performance of the experimental groups showed that participants who received vocabulary through electronic platforms outperformed those who received the instructions on paper. Basoglu and Akdemir (2010) also showed that using mobile phones to teach vocabulary can have more positive impact on the learners than teaching them using flashcards. In another study, Suwantarathip and Orawiwatnakul (2015) stated that students in the experimental group receiving mobile-assisted vocabulary activities performed better than the students of the control group who received paper-based exercises. Saricoban and Ozturan (2013) conducted a study to measure the effect of mobile

phone on teaching technical words and sentences. The findings of the study showed that those students who received the treatment by means of mobile phones were motivated and learned the vocabulary efficiently. Thus, the findings of our study are in line with the aforementioned studies and using SMSs as an educational tool in the EFL context could lead to vocabulary size improvement and foster their acquisition over the long term. It should also be mentioned that the positive results could be explained in terms of learners' motivation and openness to experience learning outside the so-called 'traditional' environment and receiving vocabulary items in context via their mobile phones helped them gain knowledge after the six-week treatment. However, additional investigations should be carried out in order to reach definitive conclusions with learners coming from different backgrounds and proficiency levels, as this could have influenced the results of the current study.

Although this study achieved its aims, there were some unavoidable limitations. First, because of the small size of the sample, the results might not be generalizable to other types of populations. Second, the post-tests were administered immediately after finishing the treatment. A further study can be carried out with delayed post-tests to check learners' vocabulary retention. Third, the focus of the present study is vocabulary depth and breadth; therefore, more research studies should be carried out on the interaction of breadth and depth of lexical knowledge and reading performance. Fourth, only pre-intermediate level learners took part in this study, so another study could be carried out with language learners of other proficiency levels in order to corroborate the current results. Fifth, the focus of the study was limited to sending SMS text messages to improve learners' lexical knowledge; so additional goals could be added in order to have a more in-depth view of the learners' tendencies when they are in contact with this type of educational tool. Sixth, in this study, text messaging via m-learning was the medium of instruction, so other studies could be carried out with different m-learning applications. Additionally, more qualitative analyses are required in these types of studies in order to grasp not only the learners' performance but also their response to the implementation of text messaging as an educational medium in the EFL classrooms.

In general, the use of text messaging through mobile phones has been used successfully in a variety of ways in the learning language process, as stated in the results of the current paper. As

a result, policymakers and school administrators should consider text messaging via m-learning as another educational instrument that has many latent benefits for foreign language learning.

Conclusion

Considering the rapid improvement of technology, mobile devices can be considered motivational learning tools. Teachers and learners are tired of the old-fashioned methods of vocabulary learning, like memorization and repetition. Using various kinds of applications facilitates learning and it also generates variation and excitement. The current study was undertaken to measure the usefulness of mobile phone text messaging when introducing vocabulary items to EFL university learners in Iran. The basic assumptions were that text messaging through m-learning improves learners' breadth and depth of lexical knowledge. The findings of the present study indicated that using text messaging via m-learning was effective for learners' vocabulary breadth, and there was a meaningful difference between the post-test scores of the study group in terms of vocabulary breadth. The data concerning vocabulary depth showed a slight but not statistically remarkable discrepancy at the end of the study. The findings of this study showed the treatment process used in this study affected learners' breadth of lexical knowledge rather than their depth. The findings also showed that vocabulary learning through SMS text messaging has a positive effect on learners' lexical knowledge in general and the size of their vocabulary in particular.

The results of this study can have instructional implications for teachers and learners and help them use mobile learning more appropriately for effective vocabulary learning. Designing and planning these type of vocabulary activities should be considered by educators and teachers in order to foster learners' lexical knowledge. Learners' awareness of the depth of lexical knowledge can be raised by teachers in a variety of ways. Activities and tasks proposed by Schmitt and Schmitt's (1995), such as vocabulary notebooks could be useful in this case. Learners can improve their lexical knowledge using mobile learning at any point in time. In conclusion, the use of mobile phones as a pedagogical instrument will surely improve the process of learning and teaching.

Despite the encouraging findings of the current study, text messaging positively affects L2 lexical learning, some limitations were found. With a small sample of pre-intermediate English students at one university, the results of this study may not be completely generalized. The

treatment process lasted only six weeks. A longer time allocated for the treatment might have resulted in different findings. Observing individual learners would be meaningful for finding how and when they checked the text messages for vocabulary learning on their mobile phones.

Conflicts of interest

The authors declare that they have no conflicts of interest.

Ethics statement

Before starting the experiment, the participants were required to show their consent via signing an ethical statement letter to take part in the study. The author ensured that all procedures were performed in compliance with relevant laws and institutional ethical guidelines.

Chapter 5

Overall Conclusion

5.1. Overview

The last chapter of this dissertation summarizes the primary purposes of the study and draws the main conclusions based on the empirical data collected and analyzed. A brief summary of the main findings from the three studies is introduced and discussed in relation to the existing literature on the current topic. The limitations of the study are mentioned in order to give a clear idea of the topic for future studies. Recommendations for further research are stated for those researchers who are interested in doing research based on educational SMSs or similar academic backgrounds; and finally, the pedagogical implications are mentioned for those people who are working closely with the educational development systems.

5.2. Discussion

The first study aimed to check whether there were any significant vocabulary gains through the use of the educational SMSs in an EFL learning context. Additionally, it sought to measure the effectiveness of this type of vocabulary learning strategy on 74 Iranian EFL learner's reading comprehension ability of pre-intermediate texts. The study was a quantitative study and the data that were gathered through the implementation of a pre-post-test were analyzed with the SPSS software. The results of the study revealed better performance in reading comprehension within the experimental group; however, the statistics were not significant, so it can be concluded that learning vocabulary through SMSs did not have any sign of significant effects on the reading ability of Iranian EFL learners.

The study has similar results with the existing literature like the one carried out by Plester *et al.* (2008), who states that sending too many SMSs will result in lower scores rather than improvements. They have assumed that sending text messages might not be beneficial for some qualifications. They also could not state evidently that more frequency in sending SMSs will help the students, but they have stated that there are some intervening factors, like the cultural ones, that are effective in getting such results. Powell and Dixon (2011) revealed a negative relation between sending SMSs and spelling the words. They have stated that exposing students to misspelling of the words by texting had negative effects on their real abilities. Further studies by

some other scholars showed the non-effectiveness of SMSs in education (Tayebinika & Puteh, 2012; Verheijen, 2013; Kibona & Mgya, 2015; Yavuz, 2016). On the contrary, some studies carried out by Han & Gürlüyer (2017; Lu (2008); Saran *et al.* (2008); Cavus & Ibrahim (2009); and Hulstijn & Laufer (2001) revealed that the implementation of smart phones to learn and teach the vocabulary is very motivating among the participants of their studies, and it dramatically improved the vocabulary of the learners, and finally, the learners showed very positive attitudes toward the function of smart phones during the learning process.

The second study measured the level of Iranian EFL learner`s autonomy after being exposed to the treatment, which was vocabulary learning through educational SMSs, and it elicited the perceptions of learners regarding the implementation of mobile learning in educational contexts. 37 students formed the experimental group who were interviewed by the researcher after the experiment (a semi-structured interview). Both quantitative and qualitative data were collected for this study. It was revealed that gender is not a practical variable in the determination of the autonomy level. The perceptions of the Iranian EFL learners were investigated towards MALL, and they have stated that implementing the mobile phone in the learning and teaching contexts can provide better, exciting, incentive, diverse and practical experience during the process.

The results of this study are consistent with the contemporary existing literature. Nasr and Abbas (2018) reported an increase in their learners` autonomy after implementing MALL among EFL learners in a reading module. Hazaea and Alzubi (2018) also state that MALL could function as a motivational factor in the ELT context, consequently increasing the autonomy among the learners. In other studies, (Farangi *et al.*, 2017; Leis *et al.*, 2015) the effects of the SMSs were measured on EFL learners, and the results have represented an increase in the autonomy level of participants as well as an improvement in the awareness of using mobile phones in educational environments. Finally, the findings of this study align with the finding of an investigation carried out by Ali *et al.* (2019), saying that learners tended to use MALL inside the classroom and this could represent an incentive for practitioners and EFL teachers to further exploit creative ways of introducing it in their regular teaching practices.

The third study measured the vocabulary breadth or size of words and the vocabulary depth or knowledge of words among 37 Iranian EFL learners in the experimental group who received 106 words through educational SMSs by means of using a mobile phone. The results of the study

showed that the performance of the Iranian EFL learners' vocabulary depth in both the pre-test and the post-test were the same, therefore, it can be concluded that using the SMS as an instructional tool to implement vocabulary items does not have any significant effect on learners' vocabulary knowledge. On the contrary, it was proven that the vocabulary size of the same students had a significant difference in the post-test, which leads to the conclusion that using the SMS to teach vocabulary will positively increase the vocabulary size of the Iranian EFL learners.

Various studies have reported similar results, and some reported opposite findings. For example, Alemi *et al.* (2012) stated that the usage of SMS on Iranian vocabulary learning and retention is not effective; while on the other hand, some other studies (Lu, 2008; Saran & Seferoglu, 2010; Zhang *et al.*, 2011) revealed that the implementation of SMS was substantially beneficial during the process of vocabulary acquisition. Basoglu and Akdemir (2010), Lu (2008), and Suwantarathip and Orawiwatnakul (2015) stated that those learners who received the instructions which are related to the vocabulary learning through SMSs performed better than those who followed the traditional way of instruction through printed materials and flashcards.

5.3. Pedagogical Implications

Based on the discussions and the findings, the current paper provides various implications for the academic context. Firstly, syllabus designers and teachers need to find out new strategies and techniques to redesign the syllabus since most of the classes in the Iranian EFL context lack the essential technological devices or the lack of stable or high-speed Internet can interrupt some technological processes of teaching and learning. In addition, using MALL in the learning and teaching contexts provides cost-effective but productive results for the students. The implementation of technological tools, especially mobile phones, will facilitate the learning out of the limitations of time and place. Furthermore, MALL in educational contexts will help the students to be more comfortable during their performance. Finally, as it is evident these days, students that are young generation of each society are mostly dependent on their mobile phones for the purposes of gaming, and communicating, so in this case using the mobile phone for teaching and learning processes can be considered an easy and comfortable access tool to manage the learning.

5.4. Limitations and Suggestions for Further Research

Like any research study, this doctoral investigation, which is fundamentally based on the three related papers, has some limitations.

This dissertation focused mainly on the role of the SMS as an instructional tool to measure learners' ability in reading comprehension, their autonomy, the size of their vocabulary acquisition, and the knowledge of new words acquired by sending new vocabulary items through SMSs using a mobile phone. Further studies can be suggested to implement other features of a mobile phone such as MMS or the related existing and accessible applications such as Instagram, WhatsApp, Facebook, etc. to measure their effectiveness on foreign language learning skills as grammar, writing, and speaking.

The other limitation of this study was the small size of population, 74 Iranian EFL students were selected for the study; therefore, the findings cannot be generalized to the entire population. To gain more knowledge about the use of SMS and MALL and its benefits, more studies can be carried out with a larger number of population from Iran in order to generalize the findings. Similar studies can be done with the ESL/EFL students from other countries to measure the differences in a comparative study based on the potential cultural differences in English language learning and teaching.

Thirdly, in the current research study, parameters such as learner's motivation, aptitude, and attitude were not considered as measurable variables. It can be suggested that some researchers could focus on the aforementioned variables, which were mentioned earlier in order to gain extensive knowledge regarding the population of the study, and the efficiency of the instruments used.

Fourthly, according to OPT, the participants of the study were pre-intermediate English students, and it may not be appropriate to generalize the findings based on the proficiency level of the participants. To be able to design better studies on the implementation of MALL in an academic context, the needs, motivation, and perceptions of students with all English language proficiency levels must be taken into consideration.

The other limitation of this dissertation is that all the posttests were administered immediately after the end of the treatment, so the use of delayed posttests could have been appropriate to measure the long-term vocabulary retention of the participants.

The age restrictions can be considered as one of the significant limitations of this study. The population of this dissertation had an age range of 21 to 26, while it can be observed that young people are more dependent on their mobile phones. So, further research studies can be conducted to measure the effect of age in a similar research design.

This study was conducted in the capital of Iran, where people have access to modern technological devices, smart phones and the Internet, however sometimes the electricity shuts down, there is low speed connection, and other unseen problems. It seems that students in the capital cities are considering the SMS as a traditional way of communication, but not as an educational tool. It seems that a study, which looks after the poor and remote areas, can reveal a more evident viewpoint towards the usage of the mobile phone and the SMS in educational contexts.

Finally, the focus of this study was to send the vocabulary items through SMS, while further studies can be suggested to send grammatical structures or some teaching and learning tips through SMSs or other related mobile applications.

References

- Abadi, S., & Saadi, F. (2015). Exploring Iranian EFL university students' attitudes toward mobile applications for vocabulary learning. *International Journal of Language Learning and Applied Linguistics World*, 9 (1), 130-142.
- Abdel Razeq, A. A. (2014). University EFL Learners' Perceptions of Their Autonomous Learning Responsibilities and Abilities. *RELC Journal*, 45(3), 321-336. <http://doi.org/10.1177/0033688214547035>
- Abu Ziden, A., Rosli, M., Gunasegaran, T., & Azizan, N. S. (2017). Perceptions and experience in mobile learning via SMS: A case of distance education students in a Malaysian public university. *International Journal of Interactive Mobile Technologies*, 11 (1), 116-132. <https://doi.org/10.3991/ijim.v11i1.6332>
- Ağca, R. K., & Özdemir, S. (2013). Foreign language vocabulary learning with mobile technologies. *Procedia-Social and Behavioral Sciences*, 83, 781-785. <https://doi.org/10.1016/j.sbspro.2013.06.147>
- Agdam, S. J., & Sadeghi, K. (2014). Two formats of word association tasks: A study of depth of word knowledge. *English Language Teaching*, 7(10), 1-12. <https://doi.org/10.5539/elt.v7n10p1>
- Ahmad, B. E., & Majid, F. A. (2010). Self-directed learning and culture: A study on Malay adult learners. *Procedia-Social and Behavioral Sciences*, 7, 254-263. <https://doi.org/10.1016/j.sbspro.2010.10.036>
- Ahmadpour, L., & M. H. Yousefi. (2016). The role of mobile-assisted language learning on EFL learners' development of writing accuracy, fluency, and complexity. *Journal of Modern Research in English Language Studies*, 3 (4), 105-118. <https://doi.org/10.30479/ELT.2016.1581>
- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of economic Perspectives*, 24(3), 207-232. <https://doi.org/10.1257/jep.24.3.207>
- Akın, A., & Seferoğlu, G. (2004). Improving learners' vocabulary through strategy training and recycling the target words. *Hacettepe University Journal of Education*, 27(1), 1-10.
- Alalwan, N., Alzahrani, A., Sarrab, M. (2013). M-learning the next generation of education in cyberspace. *World Academic of Science, Engineering and Technology*, 74, 642-645.
- Alemi, M., Sarab, M., & Lari, Z. (2012). Successful learning of academic word list via MALL: Mobile Assisted Language Learning. *International Education Studies*, 5(6), 99-109. <https://doi.org/10.5539/ies.v5n6p99>
- Alexander, B. (2004). Going nomadic: Mobile learning in higher education. *EDUCAUSE Review*, 35(5), 29-35.
- Ali, K. M. J., Hasnain, I., & Beg, S. (2019). The Impact of Texting on Standard English: The Students' Perspective. *Arab World English Journal*, 5, 65-75. <https://doi.org/10.24093/awej/call5.6>

- Ali, M. M., Mahmood, M. A., Anwar, M. N., Khan, L. A., & Hussain, A. (2019). Pakistani learners' perceptions regarding mobile assisted language learning in ESL classroom. *International Journal of English Linguistics*, 9 (4) 386-398. <https://doi.org/10.5539/ijel.v9n4p386>
- Al-Jarf, R. (2012). Mobile technology and student autonomy in oral skill acquisition. In J. E. Diaz-Vera (Ed.), *Left to My Own Devices: Learner Autonomy and Mobile-Assisted Language Learning* (pp. 105-130). Bingley, UK: Emerald Group Publishing Limited.
- Al-Khasawneh, F. (2019). The impact of vocabulary knowledge on the reading comprehension of Saudi EFL learners. *Journal of Language and Education*, 5(3), 24-34. <https://doi.org/10.17323/jle.2019.8822>
- Al-Shehri, S. (2011). Mobile social networking in language learning: A transformational tool. *International Journal of Mobile Learning and Organization*, 5(3/4), 345-359. <https://doi.org/10.1504/ijmlo.2011.045322>
- Alzu'bi M. A. M., & Sabha, M. R. N. (2013). Using mobile-based email for English foreign language learners. *Turkish Online Journal of Educational Technology-TOJET*, 12(1), 178-186.
- Alzubi, A, A, F. (2019). Smartphone-mediated language learning strategies and learner autonomy among pre-university learners in EFL reading context. *Journal of Humanities and Social Sciences Studies (JHSSS)*, 1(3), 49-63.
- Anderson, R.C. & Freebody, P. (1981). Vocabulary Knowledge In J.T. Guthrie (Ed), *Comprehension and teaching: Research reviews* (pp.77-117). Newark, DE: International Reading Association.
- Andersson, A. (2008). Seven major challenges for e-learning in developing countries: Case study eBIT, SriLanka. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 4 (3), 45-62.
- Arani, J. A. (2016). Mobile educational SMSs as supplementary means to teach sentence paraphrasing in EMP course. *International Journal of Interactive Mobile Technologies*, 10(1), 45-51. <https://doi.org/10.3991/ijim.v10i1.5188>
- Atawneh, S., Al-Akhras, M., AlMomani, I., Liswi, A., & Alawairdhi, M. (2020). Collaborative Mobile-Learning Architecture Based on Mobile Agents. *Electronics*, 9(1), 162. <https://doi.org/10.3390/electronics9010162>
- Aviad, T. L., & Laufer, B. (2013). Lexical properties in the writing of foreign language learners over eight years of study: single words and collocations. In C. Bardel, C. Lindquist, & L. Laufer (Eds.), *L2 vocabulary acquisition, knowledge and use new perspectives on assessment and corpus analysis* (pp. 127-148). European Second Language Association.
- Azli, W. U. A. W., Shah, P. M., & Mohamad, M. (2018). Perception on the usage of mobile assisted language learning (MALL) in English as second language (ESL) learning among vocational college students. *Education*, 9 (1), 84-98. <https://doi.org/10.4236/ce.2018.91008>
- Baleghizadeh, S., & Oladrostam, E. (2010). The effect of mobile-assisted language learning (MALL) on the grammatical accuracy of EFL students. *MEXTESOL Journal*, 34(2), 1-10.

- Barcroft, J. (2015). Can retrieval opportunities increase vocabulary learning during reading? *Foreign Language Annals*, 48(2), 236-249. <https://doi.org/10.1111/flan.12139>
- Baron, N. S., & af Segerstad, Y. H. (2010). Cross-cultural patterns in mobile-phone use: Public space and reachability in Sweden, the USA and Japan. *New Media & Society*, 12 (1), 13-34. <https://doi.org/10.1177/1461444809355111>
- Başoğlu, E., & Akdemir, O. (2010). A comparison of undergraduate students' English vocabulary learning: Using mobile phones and flashcards. *Turkish Online Journal of Educational Technology*, 9(3), 1-7. Retrieved from <https://eric.ed.gov/?id=EJ898010>.
- Baumann, J., Kame'enui, E., Ash, G. (2003). Research on vocabulary instruction: Voltaire redux. In Flood, J., Lapp, D., Squire, J., Jensen, J. (Eds.), *Handbook of research on teaching the English language arts* (2nd ed., pp. 752–785). Mahwah, NJ: Erlbaum.
- Baykal, G. & Daventry, A. (2000). Vocabulary for Interacting with. In S. Tüzel- Köymen & E. Kortan (Eds.), *Proceedings of the 5th METU international ELT convention: Interaction on the threshold of a new millennium*, (pp. 168-173).
- Beck, I. & McKeown, M. (1991). Conditions of vocabulary acquisition. In R. Barr, M. L. Kamil, P. B. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (pp. 789–814). Vol. 2. New York: Longman.
- Behforouz, B. & Frumuselu, A. D. (2020). The impact of text messaging as an instructional tool to enhance learner autonomy and perception. *International Journal of Learning, Teaching and Educational Research*, 19 (11), 184-202. <https://doi.org/10.26803/ijlter.19.11.11>
- Behforouz, B. & Frumuselu, A. D. (2021). The reflection of vocabulary implementation through educational texting on EFL learner's reading skill. *International Journal of Interactive Mobile Technologies*, 15 (1), 88-103. <https://doi.org/10.3991/ijim.v15i01.18309>
- Behforouz, B., & Frumuselu, A. D. (2021). The effect of text messaging on EFL learners' lexical depth and breadth. *Journal of Language and Education*, 7 (2), 107-123. <https://doi.org/10.17323/jle.2021.11469>
- Beland, L. P., & Murphy, R. (2016). III communication: technology, distraction & student performance. *Labour Economics*, 41, 61-76. <https://doi.org/10.1016/j.labeco.2016.04.004>
- Beland, P. L., & Murphy, R. (2016). III Communication: technology, distraction & student performance. *Labour Economics*, 41, 61-67. <https://doi.org/10.1016/j.labeco.2016.04.004>
- Benson, P. (2003). Learner autonomy in the classroom. In D. Nunan (Ed.) *Practical Boud, D. (1995) Moving towards autonomy' in Developing student autonomy in learning*. New York: Nichols Publishing.
- Benson, P. (2011). Language learning and teaching beyond the classroom: An introduction to the field. In Benson P. and Reinders H. *Beyond the language classroom* (pp. 7-16). Palgrave Macmillan, London. https://doi.org/10.1057/9780230306790_2

- Benson, P., and Voller, P. (1997). Introduction: autonomy and independence in language learning. In Benson P. and Voller P. (eds), *Autonomy and Independence in Language Learning*. Harlow: Longman. <https://doi.org/10.4324/9781315842172-1>
- Bidin, S., & Ziden, A. A. (2013). Adoption and Application of Mobile Learning in the Education Industry. *Procedia - Social and Behavioral Sciences*, 90, 720-729. <https://doi.org/10.1016/j.sbspro.2013.07.145>
- Blachowicz, C. L. Z. & Fisher, P. (2000). Vocabulary instruction. In M. L. Kamil, P. B. Mosenthal, P. D. Pearson, & R. Barr (Eds.), *Handbook of reading research* (pp. 503-523). Vol. III. Mahwah, NJ: Lawrence Erlbaum.
- Bødker, S. (1991). Activity theory as a challenge to system design. In H.E. Nissen, H.K. Klein and R. Hirschheim (Eds), *Information System Research: Contemporary Approaches and Emergent Traditions* (pp.55–564). North Holland: Elsevier Science Publisher BV.
- Bødker, S. and Petersen, M.G. (2000). Design for learning in use. *Scandinavian Journal of Information Systems*, 12, pp.61-80.
- Botero, G., Questier, F., Cincinnato, S., He, T., & Zhu, C. (2018). Acceptance and usage of mobile assisted language learning by higher education students. *Journal of Computing in Higher Education*, 30(3), 426-451. <https://doi.org/10.1007/s12528-018-9177-1>
- Bowen, K., & Merchant, J. (2015). Internet censorship in Iran: Preventative, interceptive and reactive. *Revolution Decoded*, 14.
- Bowman, N. D., & Akcaoglu, M. (2014). I see smart people!: Using Facebook to supplement cognitive and affective learning in the university mass lecture. *The Internet and Higher Education*, 23(1), 1-8. <https://doi.org/10.1016/j.iheduc.2014.05.003>
- Brann, A., Gray, T., Zorfass, J., & PowerUp WHAT WORKS (2009). Using multimedia to support reading instruction. Available at <http://www.ldonline.org/article/61326/>.
- Brion, C. (2019). Keeping the learning going: Using mobile technology to enhance learning transfer. *Educational Research for Policy and Practice*, 18(3), 225-240. <https://doi.org/10.1007/s10671-018-09243-0>
- Browne, C., & Culligan, B. (2008). Combining technology and IRT testing to build student knowledge of high- frequency vocabulary. *The JALT CALL Journal*, 4(2), 3-16. <https://doi.org/10.29140/jaltcall.v4n2.59>
- Bruton, A. (2007). Vocabulary learning from dictionary reference in collaborative EFL translational writing. *System*, 35(3), 353-367. <https://doi.org/10.1016/j.system.2007.01.004>
- Cameron, K. (1999) (Ed.). *CALL and the learning community*. Intellect Books.
- Camilleri, G. (1999). Learner autonomy: The teachers' views. Retrieved from http://archive.ecml.at/documents/pubCamilleriG_E.pdf
- Carrell, P. L., & Eisterhold, J. C. (1983). Schema theory and ESL reading pedagogy. *TESOL Quarterly*, 17 (4), 553-573. <https://doi.org/10.2307/3586613>

- Campbell, S.W. & Kwak, N. (2010). Mobile communication and civic life: Linking patterns of use to civic and political engagement. *Journal of Communication*, 60(3), 536-555. <https://doi.org/10.1111/j.1460-2466.2010.01496.x>
- Cavus, N., & Ibrahim, D. (2009). M-learning: An experiment in using SMS to support learning new English language words. *British Journal of Educational Technology*, 40(1), 78-91. <https://doi.org/10.1111/j.1467-8535.2007.00801.x>
- Chang, T.-W., Hsu, J.-M., & Yu, P.-T. (2011). A comparison of single- and dual-screen environment in programming language: Cognitive loads and learning effects. *Educational Technology & Society*, 14(2), 188-200.
- Chapelle, C.A. (1998). Construct definition and validity inquiry in SLA research. In L. F. Bachman. & A. D. Cohen (Eds.), *Interfaces between second language acquisition and language testing research* (pp. 32-70). Cambridge: Cambridge University Press. <https://doi.org/10.1017/cbo9781139524711.004>
- Chapelle, C.A. (2008). Computer assisted language learning. In B. Spolsky & F. Hult (Eds.). *The handbook of educational linguistics* (pp. 585-595). Malden, MA: Blackwell Publishing. <https://doi.org/10.1002/9780470694138.ch41>
- Chen, C. M., & Chung, C. J. (2008). Personalized mobile English vocabulary learning system based on item response theory and learning memory cycle. *Computers & Education*, 51(2), 624-645. <https://doi.org/10.1016/j.compedu.2007.06.011>
- Chu, H.-C. (2014). Potential Negative Effects of Mobile Learning on Students' Learning Achievement and Cognitive Load—A Format Assessment Perspective. *Educational Technology & Society*, 17 (1), 332-344.
- Chen, N. S., Hsieh, S. W., & Kinshuk (2008). Effects of short-term memory and content representation type on mobile language learning. *Language Learning & Technology*, 12(3), 93-113.
- Clark, J. M., & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review*, 3 (3), 149-210. <https://doi.org/10.1007/bf01320076>
- Coady, J., Magotto, J., Hubbard, P., Graney, J., & Mokhtari, K. (1993). High frequency vocabulary and reading proficiency in ESL readers. In T. Huckin, M. Haynes, & J. Coady (Eds.), *Second language reading and vocabulary learning* (pp.217- 228). Norwood, NJ: Ablex.
- Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences, 2nd Edition*. Hillsdale: Lawrence Erlbaum.
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). New York: Routledge.
- Comas-Quinn, A., Mardomingo, R., & Valentine, C. (2009). Mobile blogs in language learning: making the most of informal and situated learning opportunities. *ReCALL*, 21(1), 96-112. <https://doi.org/10.1017/s0958344009000032>

- Cotterall, S. (1995). Developing a course strategy for learner autonomy. *ELT Journal*, 49(3), 219-227. <https://doi.org/10.1093/elt/49.3.219>
- Council of Europe. (2001). *Common European Framework of Reference for Languages: learning, teaching, assessment*. Cambridge: Cambridge University Press.
- Cowan, P., & Butler, R. (2013). Using activity theory to problematize the role of the teacher during mobile learning. *SAGE Open*, 3 (4), 1-13. <https://doi.org/10.1177/2158244013516155>
- Criollo-C, S., Guerrero-Arias, A., Jaramillo-Alcázar, Á., & Luján-Mora, S. (2021). Mobile Learning Technologies for Education: Benefits and Pending Issues. *Applied Sciences*, 11(9), 4111. <https://doi.org/10.3390/app11094111>
- Crompton, H., & Burke, D. (2015). Research trends in the use of Mobile learning in mathematics. *International Journal of Mobile and Blended Learning*, 7(4), 1–15. <https://doi.org/10.4018/IJMBL.2015100101>
- Daftarifard, P., & Bagherpour, N. (2018). *General English Book: A task-based approach*. Tehran: Honar-e Mehregan Publishing.
- Dağdeler, K. O., Konca, M. Y., & Demiröz, H. (2020). The effect of Mobile-Assisted Language Learning (MALL) on EFL learners' collocation learning. *Journal of Language and Linguistic Studies*, 16 (1), 489-509. <https://doi.org/10.17263/jlls.712891>
- Dallman, R. I. (1982). *Teaching of reading*. New York: CBS College Publishing.
- Dam, L. (2011). Developing learner autonomy with school kids: Principles, practices, results. In D. Gardner (Ed.), *Fostering autonomy in language learning* (pp. 126-136). Gaziantep: Zirve University
- De la Fuente, M. J. (2014). Learners' attention to input during focus on form listening tasks: The role of mobile technology in the second language classroom. *Computer Assisted Language Learning*, 27(3), 261-276. <https://doi.org/10.1080/09588221.2012.733710>
- De la Pena-Bandalaria, M. (2007). Impact of ICTs on open and distance learning in a developing country setting: The Philippine experience. *International Review of Research in Open and Distance Learning*, 8(1), 1-15. <https://doi.org/10.19173/irrodl.v8i1.334>
- Dellicarpini, M. (2012). Action research building computer technology skills in TESOL teacher education. *Language Learning & Technology*, 16 (2), 14-23. <http://llt.msu.edu/issues/june2012/action.pdf>
- Dehkordi, E. M., & Taki, S. (2018). Iranian male and female EFL learners' perceptions toward the use of Mobile Assisted Language Learning. *Journal of Applied Linguistics and Language Research*, 5 (3), 56-66.
- Denscombe, M. (2014). *The good research guide: For small-scale social research projects* (5th ed.). Maidenhead: Open University Press.
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5-22. <https://doi.org/10.1177/0047239520934018>

- Dickinson, L. (1994). Preparing learners: Toolkit requirements for preparing/orienting learners. In E. Esch (Ed.), *Self-access and the adult language learner* (pp. 39-49). London: CILT.
- Dickinson, L. (1995). Autonomy and motivation a literature review. *System*, 23 (2), 165-174. [https://doi.org/10.1016/0346-251x\(95\)00005-5](https://doi.org/10.1016/0346-251x(95)00005-5)
- Donaghue, H., Lange, M., & Scott, R. (2013). Reflecting on mobile learning: A community of practice approach. In S. Dowling, H. Donaghue, C. Gunn, J. Raven & S. Hayhoe (eds), *Redefining Learning: Creating and Sustaining Powerful and Adaptive Learning Environments for 21st Century Learners*. Abu Dhabi: HCT Press, 73–82.
- Ducate, L., & Lomicka, L. (2009). Podcasting in the language classroom: Inherently mobile or not? In R. Oxford & J. Oxford (Eds.), *Second language teaching and learning in the net generation* (pp. 113-128). Honolulu: University of Hawai'i, National Foreign Language Resource Center.
- DuFour, R. (2004). What is a "professional learning community"? *Education Leadership*, 61(8), 6-11.
- Duman, G., Orhon, G., & Gedik, N. (2015). Research trends in mobile assisted language learning from 2000 to 2012. *ReCALL*, 27(2), 197-216. <https://doi.org/10.1017/s0958344014000287>
- Engeström, Y. (1987) *Learning by Expanding: an Activity-Theoretical Approach to Developmental Research*. Helsinki, Finland: Orienta-Konsultit, OY.
- Erten, İ. H., & Tekin, M. (2008). Effects on vocabulary acquisition of presenting new words in semantic sets versus semantically unrelated sets. *System*, 36 (3), 407-422. <https://doi.org/10.1016/j.system.2008.02.005>
- Fabian, K., Topping, K. J., & Barron, I. G. (2018). Using mobile technologies for mathematics: Effects on student attitudes and achievement. *Educational Technology Research and Development*, 66 (5), 1119-1139. <https://doi.org/10.1007/s11423-018-9580-3>
- Farangi, M. R., Kamyab, J., Izanlu, M., & Ghodrati, N. (2017). The effect of using SMS as a post task activity on Iranian EFL learners' grammar knowledge. *Journal of Language Teaching and Research*, 8 (2), 392-403. <https://doi.org/10.17507/jltr.0802.24>
- Faux, F., McFarlane, A., Roche, N. & Facer, K. (2006) Handhelds: learning with handheld technologies. Handbook for Futurelab. <http://www.futurelab.org.uk/research/handbooks/05>.
- Fredrick, L., & Karthikeyan, J. (2018). Exploring the reach of mobile assisted language learning among mechanical engineering students. *International Journal of Mechanical Engineering and Technology*, 9 (8), 738-742.
- Frumuselu, A.D. (2015). *Subtitled television series inside the EFL classroom: long-term effects upon colloquial language learning and oral production* (Unpublished doctoral dissertation). Universitat Rovira i Virgili and Universiteit Antwerpen.

- Garcia Botero, G., Questier, F., Cincinnato, S., He, T., & Zhu, C. (2018). Acceptance and usage of mobile assisted language learning by higher education students. *Journal of Computing in Higher Education*, 30(3), 426-451. <https://doi.org/10.1007/s12528-018-9177-1>
- Genç, B. (2004). New trends in teaching and learning vocabulary. *Çukurova Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, 13(2), 117-126. <https://doi.org/10.35379/cusosbil.556866>
- Geng, G. (2013). Investigating the use of text messages in mobile learning. *Active Learning in Higher Education*, 14(1), 77-87. <https://doi.org/10.1177/1469787412467122>
- Ghanizadeh, A., Razavi, A., & Jahedizadeh, S. (2015). Technology-enhanced language learning (TELL): A review of recourses and upshots. *International Letters of Chemistry, Physics and Astronomy*, 54, 73-87. <https://doi.org/10.18052/www.scipress.com/ilcpa.54.73>
- Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. *Internet and Higher Education*, 19, 18-26. <https://doi.org/10.1016/j.iheduc.2013.06.002>
- Gingerich, A. C., & Lineweaver, T. T. (2013). OMG! texting is class = u fail :(Empirical evidence that text messaging during class disrupts comprehension. *Teaching of Psychology*, 41(1), 44-51. <https://doi.org/10.1177/0098628313514177>
- Godwin-Jones, R. (2011). Mobile apps for language learning. *Language Learning & Technology*, 15(2), 2-11.
- Goh, T.T. & Hooper, V. (2007). To TxT or Not to TxT: That's the Puzzle. *Journal of Information Technology Education: Research*, 6(1), 441-453. Informing Science Institute. Retrieved October 23, 2020 from <https://www.learntechlib.org/p/111432/>.
- Golonka, E. M., Bowles, A. R., Frank, V. M., Richardson, D. L., & Freynik, S. (2014). Technologies for foreign language learning: a review of technology types and their effectiveness. *Computer Assisted Language Learning*, 27(1), 70-105. <https://doi.org/10.1080/09588221.2012.700315>
- Goundar, S. (2011). What is the potential impact of using mobile devices in education? Proceedings of SIG Glob Dev Fourth Annual Workshop, Shanghai, China - December 3, pp. 1-30.
- Govindasamy, P., Yunus, M. M., & Hashim, H. (2019). Mobile assisted vocabulary learning: Examining the effects on students' vocabulary enhancement. *Universal Journal of Educational Research*, 7(12A), 85-92. <https://doi.org/10.13189/ujer.2019.071911>
- Grabe, W., & Stoller, F. (2001). Reading for academic purposes: Guidelines for the ESL/EFL teacher. In M. Celce-Murcia (Ed.), *Teaching English as a Second or Foreign Language* (3rd ed., pp. 187-204). USA: Heinle & Heinle.
- Graham, P. (2007). Improving teacher effectiveness through structured collaboration: A case study of a professional learning community. *RMLE Online*, 31(1), 1-17. <https://doi.org/10.1080/19404476.2007.11462044>

- Grinter, R., & Eldridge, M. (2003, April). Wan2tlk? Everyday text messaging. In *Proceedings of the SIGCHI conference on Human factors in computing systems* (pp. 441-448). <https://doi.org/10.1145/642611.642688>
- Gürkan, S. (2018). The effects of a mobile assisted vocabulary learning application on vocabulary learning. *Turkish Online Journal of Qualitative Inquiry*, 9(3), 288-311. DOI: 10.17569/tojq.407512
- Gürocak, F. U. (2016). Learning Vocabulary through Text Messages: Help or Distraction? *Procedia - Social and Behavioral Sciences*, 232, 623-630. <https://doi.org/10.1016/j.sbspro.2016.10.086>
- Gutiérrez-Colón, M., Gallardo Torrano, P., & Grova, M. E. (2012). SMS as a learning tool: an experimental study. *The EUROCALL Review*, 20(2), 33-47. DOI: 10.4995/eurocall.2012.11376
- Haastrup, K., & Henriksen, B. (2000). Vocabulary acquisition: Acquiring depth of knowledge through network building. *International Journal of Applied Linguistics*, 10, 221-40. <https://doi.org/10.1111/j.1473-4192.2000.tb00149.x>
- Han, T., & Gürlüyer, M. (2017). Examining the perceptions of elementary level EFL university students regarding the use of smartphones in learning EFL vocabulary. *Erzincan University Journal of Education Faculty*, 19(2), 19-36.
- Hashemi, M., & Abbasi, M. (2013). The impact/s of using mobile phone on English language vocabulary retention. *International Research Journal of Applied and Basic Sciences*, 4 (3), 541-547.
- Hayati, A., Jalilifar, A., & Mashhadi, A. (2013). Using short message service (SMS) to teach English idioms to EFL students. *British Journal of Educational Technology*, 44(1), 66-81. <https://doi.org/10.1111/j.1467-8535.2011.01260.x>
- Hazaea, A., & Alzubi, A. A. F. (2018). Impact of mobile assisted language learning on learner autonomy in EFL reading context. *Journal of Language and Education*, 4 (2), 48-58. <https://doi.org/10.17323/2411-7390-2018-4-2-48-58>
- Henderson, S., & Yeow, J. (2012). iPad in education: A case study of iPad adoption and use in a primary school. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 78-87. <https://doi.org/10.1109/HICSS.2012.390>
- Henriksen, B. (1999). Three dimensions of vocabulary development. *Studies in Second Language Acquisition*, 21 (2), 303-317. <https://doi.org/10.1017/s0272263199002089>
- Hijazi-Omari, H., & Ribak, R. (2008). Playing with fire: On the domestication of the mobile phone among Palestinian teenage girls in Israel. *Information, Community and Society*, 11(2), 149-166. <https://doi.org/10.1080/13691180801934099>
- Holec, H. (1981) *Autonomy in foreign language learning*. Oxford, UK: Pergamon.
- Hollender, N., Hofmann, C., Deneke, M., & Schmitz, B. (2010). Integrating cognitive load theory and concepts of human-computer interaction. *Computers in Human Behavior*, 26(6), 1278-1288. <https://doi.org/10.1016/j.chb.2010.05.031>

- Hu, Z. (2013). Vocabulary learning assisted by mobile phones: Perceptions of Chinese adult learners. *Journal of Cambridge Studies*, 8(1), 139-154. <https://doi.org/10.17863/CAM.1468>
- Huang, Y. M., Jeng, Y. L., & Huang, T. C. (2009). An educational mobile blogging system for supporting collaborative learning. *Journal of Educational Technology & Society*, 12 (2), 163-175.
- Huang, Y. M., Lin, Y. T., & Cheng, S. C. (2010). Effectiveness of a mobile plant learning system in a science curriculum in Taiwanese elementary education. *Computers & Education*, 54(1), 47-58. <http://dx.doi.org/10.1016/j.compedu.2009.07.006>
- Hulstijn, J. H. (1992). Retention of inferred and given word meanings: Experiments in incidental vocabulary learning. In P. Arnaud & H. Bejoint (Eds.), *Vocabulary and applied linguistics* (pp. 113-125). London: MacMillan https://doi.org/10.1007/978-1-349-12396-4_11
- Hulstijn, J. H., & Laufer, B. (2001). Some empirical evidence for involvement load hypothesis in vocabulary acquisition. *Language Learning*, 51(3), 539-558. <https://doi.org/10.1111/0023-8333.00164>
- Hung, P. H., Lin, Y. F., & Hwang, G. J. (2010). Formative assessment design for PDA integrated ecology observation. *Educational Technology & Society*, 13(3), 33-42.
- Ismail, I., Johari, S. S. M., Idrus, R. M. (2010). Acceptance on mobile learning via SMS: A Rasch Model analysis. *International Journal of Interactive Mobile Technologies*, 4 (2), 10-16. <https://doi.org/10.3991/ijim.v4i2.1144>
- Ivić, V., & Jakopec, T. (2017). Using mobile application in foreign language learning: A case study. *Libellarium: Journal for the Research of Writing, Books, and Cultural Heritage Institutions*, 9 (2), 217-230. <https://doi.org/10.15291/libellarium.v9i2.288>
- Jamalipour, S., & Farahani, A. A. K. (2015). The effect of vocabulary knowledge and background knowledge on Iranian EFL learners' 12 reading comprehension. *Journal of Applied Linguistics and Language Research*, 2(2), 107-121.
- Jambulingam, M. (2013). Behavioural intention to adopt mobile technology among tertiary students. *World Applied Sciences Journal*, 22(9): 1262-1271.
- Johnson, G. M. (2007). College student internet use: Convenience and amusement. *Canadian Journal of Learning and Technology*, 33 (1), 1. <https://doi.org/10.21432/t2088s>
- Johnson, S., & Radhakrishnan, N. (2017). Academic use of smart phones among the students of business schools in UAE-a study. *KIIT Journal of Library and Information Management*, 4 (1), 32-36.
- Kaivanpanah, S., & Zandi, H. (2009). The role of depth of vocabulary knowledge in reading comprehension in EFL contexts. *Journal of Applied Sciences*, 9(4), 698-706. <https://doi.org/10.3923/jas.2009.698.706>
- Kalogiannakis, M., & Papadakis, S. (2017). Combining mobile technologies in environmental education: A Greek case study. *International Journal of Mobile Learning and Organisation*, 11(2), 108-130. <https://doi.org/10.1504/IJMLO.2017.084272>

- Kalyuga, S. (2009). Cognitive load theory. In S. Kalyuga (Ed.), *Managing Cognitive Load in Adaptive Multimedia Learning* (pp. 34-57). Hershey, PA: Information Science Reference. <https://doi.org/10.4018/978-1-60566-048-6.ch002>
- Kamal, S. M. (2019). Developing EFL learners' vocabulary by reading English comprehension in EFL classroom. *International Journal of English Language and Literature Studies*, 8(1), 28-35. <https://doi.org/10.18488/journal.23.2019.81.28.35>
- Kaptelinin, V. (1996). Activity theory: Implications for human–computer interaction. In B. Nardi (Ed.), *Context and Consciousness: Activity Theory and Human–Computer Interaction* (pp.45-67). Cambridge, MA: MIT press. <https://doi.org/10.7551/mitpress/2137.003.0009>
- Karakoç, D., & Köse, G. D. (2017). The impact of vocabulary knowledge on reading, writing and proficiency scores of EFL learners. *Dil ve Dilbilimi Çalışmaları Dergisi*, 13(1), 352-378.
- Kasesniemi, E. L., & Rautiainen, P. (2002). Mobile culture of children and teenagers in Finland. In J. Katz & M. Aakhus, (Eds.), *Perpetual contact: Mobile communication, private talk, public performance* (pp. 170-192). Cambridge, MA: Cambridge University Press. <https://doi.org/10.1017/cbo9780511489471.014>
- Kassem, M. A. M. (2018). The Effect of a Suggested In-service Teacher Training Program Based on MALL Applications on Developing EFL Students' Vocabulary Acquisition. *Journal of Language Teaching and Research*, 9(2), 250. <https://doi.org/10.17507/jltr.0902.05>
- Katamba, C. V. (2021). Enhancing vocabulary performance through mobile assisted language learning at a rural school in Indonesia. *Acuity: Journal of English Language Pedagogy, Literature and Culture*, 6(1), 1-11. <https://doi.org/10.35974/acuity.v6i1.2457>
- Katz, E., & Aakhus, M. A. (Eds.). (2002). *Perpetual contact: Mobile communication, private talk, public performance*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/cbo9780511489471>
- Kelly, S., Cook, S., & Truong, M. (2011). *Freedom on the Net 2011: A Global Assessment of Internet and Digital Media*, Freedom House.
- Kennedy, C., & Levy, M. (2008). L'italiano al telefonino: Using SMS to support beginners' language learning. *ReCALL*, 20(3), 315-330. <https://doi.org/10.1017/s0958344008000530>
- Kibona, L., & Mgaya, G. (2015). Smartphones' effects on academic performance of higher learning students. A case of Ruaha Catholic University – Iringa, Tanzania. *Journal of Multidisciplinary Engineering Science and Technology*, 2(4), 777-784.
- Kieffer, M. J., & Lesaux, N. K. (2012b). Knowledge of words, knowledge about words: Dimensions of vocabulary in first and second language learners in sixth grade. *Reading and Writing*, 25, 347–373. <https://doi.org/10.1007/s11145-010-9272-9>
- Kikilias, P., Papachristos, D., Alafodimos, N., Kalogiannakis, M., & Papadakis, S. (2009). *An Educational Model for Asynchronous E-Learning. A case study in a Higher Technology Education*. In Proceedings of the International Conference on E-Learning in the Workplace (ICELW-09), New York, 2009.

- Kim, D., Ruecker, D., & Kim, D. J. (2017). Mobile Assisted Language Learning Experiences. *International Journal of Mobile and Blended Learning*, 9 (1), 49-66. <https://doi.org/10.4018/ijmbl.2017010104>
- Kim, D., Rueckert, D., Kim, D. J., & Seo, D. (2013). Students' perceptions and experiences of mobile learning. *Language Learning & Technology*, 17(3), 52-73.
- Kinash, S., Brand, J., & Mathew, T. (2012). Challenging mobile learning discourse through research: Student perceptions of Blackboard Mobile Learn and iPads. *Australasian Journal of Educational Technology*, 28(4), 639-655. <https://doi.org/10.14742/ajet.832>
- Kinshuk (2003). Adaptive mobile learning technologies. Available at <http://www.globaled.com/articles/Kinshuk2003.pdf>
- Klimova, B. (2020). Mobile learning and its impact on learning English vocabulary. In J. Park., L. Yang., YS. Jeong & F. Hao. (Eds.) advanced multimedia and ubiquitous engineering. MUE 2019, FutureTech 2019. Lecture Notes in Electrical Engineering, vol 590. Springer, Singapore. https://doi.org/10.1007/978-981-32-9244-4_38
- Koda, K. (1989). The effects of transferred vocabulary knowledge on the development of L2 reading proficiency. *Foreign Language Annals*, 22 (6), 529-540. <https://doi.org/10.1111/j.1944-9720.1989.tb02780.x>
- Koda, K. (2005). *Insights into second language reading. A cross-linguistic approach*. Cambridge: Cambridge University Press.
- Krashen, S. D. (1989). *Principles and practice in second language acquisition* (1982 ed.). University of Southern California, California, USA: Pergamon Press Inc. Retrieved April 14, 2019.
- Krishna, V. R. (2020). Mobile assisted language learning (MALL). Unpublished manuscript.
- Kristoffersen, S., & Ljungberg, F. (1998). Representing modalities in mobile computing. *Proceedings of Interactive Applications of Mobile Computing*, 643-648.
- Krüger-Ross, M., Waters, R. D., & Farewell, T. M. (2012). Everyone's all a-twitter about twitter. In K. K. Seo (Ed), *Using social media effectively in the classroom* (pp. 117-131). New York, NY: Routledge. <https://doi.org/10.4324/9780203101490-17>
- Kučera, H., & Francis, W. N. (1967). *A computational analysis of presented by American English*. Providence, RI: Brown University Press. <https://doi.org/10.1002/asi.5090190414>
- Kukulska-Hulme, A. (2009). Will Mobile Learning Change Language Learning? *ReCALL*, 21, 157-165. <http://dx.doi.org/10.1017/S0958344009000202>
- Kukulska-Hulme, A. (2013). *Re-skilling language learners for a mobile world*. The International Research Foundation for English Language Education (TIRF), Monterey, USA.
- Kukulska-Hulme, A., & Shield, L. (2008). An Overview of Mobile Assisted Language Learning: From Content Delivery to Supported Collaboration and Interaction. *ReCALL*, 20, 271-289. <https://doi.org/10.1017/S0958344008000335>

- Kukulska-Hulme, A., & Traxler, J. (2007). Designing for mobile and wireless learning. In H. Beetham., & R. Sharpe (Eds.), *Rethinking pedagogy for a digital age: Designing and delivering e-learning*, (pp. 180-192). London: Routledge.
<https://doi.org/10.4324/9780203961681-25>
- Kukulska-Hulme, A., & Traxler, J. John eds. (2005). *Mobile learning: A handbook for educators and trainers*. Open and Flexible Learning Series. London, UK: Routledge.
- Kurniasih, F., & Nurweni, A. (2017). The implementation of think-pair-share (TPS) technique in teaching reading comprehension. *UNILA Journal of English Teaching*, 6(2).
<https://www.neliti.com/publications/192229/>
- Kuutti, K. (1996). Activity theory as a potential framework for human–computer interaction research. In B.A. Nardi (Ed.), *Context and consciousness: Activity Theory and Human–Computer Interaction* (pp.17-44). Cambridge, MA: MIT press.
<https://doi.org/10.7551/mitpress/2137.003.0006>
- Lachane, J. A., & Mazzocco, M. M. (2006). A longitudinal analysis of sex differences in mathematics and partial skills in primary school aged children. *Learning and Individual Differences* 16(3), 195-216. <https://doi.org/10.1016/j.lindif.2005.12.001>
- Lai, C. L., & Hwang, G. J. (2014). Effects of mobile learning time on students' conception of collaboration, communication, complex problem-solving, meta-cognitive awareness and creativity. *International Journal of Mobile Learning and Organisation*, 8(3), 276–291.
<https://doi.org/10.1504/IJMLO.2014.067029>
- Lambert, W. E., Boehler, I., & Sidoti, N. (1981). Choosing the languages of subtitles and spoken dialogues for media presentations: Implications for second language education. *Applied Psycholinguistics*, 2(2), 133–148. <https://doi.org/10.1017/S0142716400000904>.
- Laufer, B. (1997). The lexical plight in second language reading: Words you don't know, words you think you know, and words you can't guess. In J. Coady & T. Huckin (Eds.) *Second Language Vocabulary Acquisition*, (pp. 20-34). Cambridge: Cambridge University Press.
<https://doi.org/10.1017/cbo9781139524643.004>
- Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge: Cambridge University Press.
- Lave, J., & Wenger, E. (2002). Legitimate peripheral participation in communities of practice. In M.R. Lea and K. Nicholl (Eds), *Distributed Learning, Social and Cultural Approaches to Practice*. London: Routledge Falmer.
- Leis, A., Tohei, A., & Cooke, S. (2015). Smartphone Assisted Language Learning and Autonomy. *International Journal of Computer-Assisted Language Learning and Teaching (IJCALLT)*, 5 (3), 75-88. <https://doi.org/10.4018/ijcallt.2015070105>
- Leont'ev, A.N. (1978). *Activity, Consciousness and Personality*. Englewood Cliffs, NJ: Prentice-Hall.

- Leow, C. K., Yahaya, W. A. J. W., & Samsudin, Z. (2014). *Mobile-Assisted Second Language Learning: Developing a Learner-Centered Framework*. International Association for the Development of the Information Society.
- Li, M., & Kirby, R. J. (2015). The effects of vocabulary breadth and depth on English reading. *Applied Linguistics*, 36 (5), 611-634. <https://doi.org/10.1093/applin/amu007>
- Li, J., Cummins, J., & Deng, Q. (2017). The effectiveness of texting to enhance academic vocabulary learning: English language learners' perspective. *Computer Assisted Language Learning*, 30(8), 816–843. <https://doi.org/10.1080/09588221.2017.1366923>
- Liaw, S. S., Hatala, M., & Huang, H. M. (2010). Investigating acceptance of mobile learning to assist individual knowledge management: Based on Activity Theory approach. *Computers & Education*, 54(2), 446-454. <https://doi.org/10.1016/j.compedu.2009.08.029>
- Lin, A. M., & Tong, A.H. (2007). Text-messaging cultures of college girls in Hong Kong: SMS as resources for achieving intimacy and gift-exchange with multiple functions. *Continuum. Journal of Media & Cultural Studies*, 21(2), 303-315. <https://doi.org/10.1080/10304310701278165>
- Lindlof, T. R., & Taylor, B. C. (2002). *Qualitative communication research methods*. Thousand Oaks, Calif: Sage Publications.
- Little, D. (1991). *Learner autonomy. 1: Definitions, issues and problems*. Dublin: Authentik.
- Little, D. (1995). Learning as dialogue: The dependence of learner autonomy on teacher autonomy. *System*, 23 (2), 175–181. [https://doi.org/10.1016/0346-251x\(95\)00006-6](https://doi.org/10.1016/0346-251x(95)00006-6)
- Little, D. (2007). Language learner autonomy: Some fundamental considerations revisited. *International Journal of Innovation in Language Learning and Teaching*, 1(1), 14-29. <https://doi.org/10.2167/illt040.0>
- Liu, P. L., & Chen, C. J. (2014). Learning English through actions: A study of mobile-assisted language learning. *Interactive Learning Environments*, 23(2), 158-17. <https://doi.org/10.1080/10494820.2014.959976>
- Liu, T. C., Lin, Y. C., Tsai, M. J., & Paas, F., (2012). Split-attention and redundancy effects on mobile learning. *Computers & Education*, 58(1), 172-180. <https://doi.org/10.1016/j.compedu.2011.08.007>
- Liu, T. Y. (2009). A context-aware ubiquitous learning environment for language listening and speaking. *Journal of Computer Assisted Learning*, 25 (6), 515-527. <https://doi.org/10.1111/j.1365-2729.2009.00329.x>
- Liu, Y., & Chen, N. S. (2008). An adoption model for mobile learning. In *Proceeding for the IADIS international Conference E-Commerce* (pp. 251-256).
- Lominé, L. L., & Buckingham, C. (2009). *M-learning: texting (SMS) as a teaching & learning tool in higher arts education*. Paper presented at the ELIA Teachers' Academy 2009, Sofia. Retrieved from https://www.academia.edu/1058896/M-learning_texting_SMS_as_a_teaching_and_learning_tool_in_higher_arts_education

- Lu, M. (2008). Effectiveness of vocabulary learning via mobile phone. *Journal of Computer Assisted Learning*, 24(6), 515-525. <https://doi.org/10.1111/j.1365-2729.2008.00289.x>
- Lu, T., & Yang, X. (2018). Effects of the visual/verbal learning style on concentration and achievement in mobile learning. *EURASIA Journal of Mathematics, Science and Technology Education*, 14(5), 1719-1729. <https://doi.org/10.29333/ejmste/85110>
- Ma, Q. (2009). *Second Language Vocabulary Acquisition*. Bern; Oxford: Peter Lang.
- Mac Callum, K., & Jeffrey, L. (2014). Comparing the role of ICT literacy and anxiety in the adoption of mobile learning. *Computers in Human Behavior*, 39, 8-19. <https://doi.org/10.1016/j.chb.2014.05.024>
- Mahdi, H. S. (2018). Effectiveness of mobile devices on vocabulary learning: A meta-analysis. *Journal of Educational Computing Research*, 56(1), 134-154. <https://doi.org/10.1177/0735633117698826>
- Mahmoud, S. S. (2013). The effect of using English SMS on KAU foundation year students' speaking and writing performance. *American International Journal of Social Science*, 2(2), 13-22.
- Mardjuki, S. M. (2018). Learner autonomy: Gender-based perception among EFL Indonesian students. *Indonesian Journal of EFL and Linguistics*, 3 (1), 1-17. <https://doi.org/10.21462/ijefll.v3i1.46>
- McCarten, J. (2007). *Teaching vocabulary – Lessons from the corpus*. Cambridge University Press, [On-line]. Retrieved February, 02.2009. Available: www.cambridge.org/elt/touchstone/images/.../McCarten_booklet.pdf
- McCarthy, S. (2010). Mobile learning and English language learners. A Case study of using iPod touch as a teaching and learning tool. *Journal of Interactive Learning Research*, 25(3), 373-403.
- Meara, P. (1980). Vocabulary acquisition: A neglected aspect of language learning. In *Language Teaching* (Vol. 13, Issues 3-4, pp. 221-246). Cambridge University Press. <https://doi.org/10.1017/S0261444800008879>
- Meara, P. (1996). The vocabulary knowledge framework. *Vocabulary Acquisition Research Group Virtual Library*, 5(2), 1-11.
- Mehrpour, S., & Montasseri, Z. (2019). The effect of using the MoodleReader Module on Iranian EFL learners' vocabulary depth and breadth. *Journal of Modern Research in English Language Studies*, 6(2), 128-103.
- Miliander, J., & Trebbi, T. (Eds.). (2011). *Educational policies and language learner autonomy in schools: A new direction in language education?* Authentic Language Learning Resources.
- Min, H., & Borg, F. B. (2018). College English autonomous study: Teachers' beliefs and practices. *Foreign Language Learning Theory and Practice*, 38 (2), 57-64.
- Mishou, M. (2017). Second language acquisition theories as reflected in CALL and MALL. *Scientific Educational Journal*, 5 (2), 17-28.

- Moinipour, S. (2021). The Islamic Republic of Iran and children's right to education: availability & accessibility. *Human Rights Education Review*, 4(2), 5-25. <https://doi.org/10.7577/hrer.3929>
- Moras, S. (2001). Teaching vocabulary to advanced students: A lexical approach, [On-line]. Retrieved February, 21.2009 Available:<http://www3.telus.net/linguisticsissues/teachingvocabulary.html>
- Motallebzadeh, KH., Ganjali, R. (2011). SMS: Tool for L2 Vocabulary Retention and Reading Comprehension Ability. *Journal of Language Teaching and Research*, 2(5), 1111-1115. <http://dx.doi.org/10.4304/jltr.2.5.1111-1115>
- Moura, A. & Carvalho, A. A. (2010). Mobile Learning: Using SMS in Educational Contexts. IFIP TC 3 International Conference on Key Competencies in the Knowledge Society (KCKS) / Held as Part of World Computer Congress (WCC), Sep 2010, Brisbane, Australia. pp.281-291. https://doi.org/10.1007/978-3-642-15378-5_27
- Muhanna, R. (2011). Mobile language learning now and in the future. In P. Svensson (Ed.), *From vision till praktik: Sprakut bildning och Information steknik (From vision to practice: language learning and IT)* (pp. 295-310). Sweden: Swedish Net University.
- Nah, K. C., White, P., & Sussex, R. (2008). The potential of using a mobile phone to access the Internet for learning EFL listening skills within a Korean context. *ReCALL: the Journal of EUROCALL*, 20(3), 331. <https://doi.org/10.1017/s0958344008000633>
- Nasr, H. A., & Abbas, A. A. (2018). Impact of mobile assisted language learning on learner autonomy in EFL reading context. *Journal of Language and Education*, 4 (2), 48-58. <https://doi.org/10.17323/2411-7390-2018-4-2-48-58>
- Nassaji, H. (2004). The relationship between depth of vocabulary knowledge and L2 learners' lexical inferencing strategy use and success. *Canadian Modern Language Review*, 61(1), 107-134. <https://doi.org/10.3138/cmlr.61.1.107>
- Nassaji, H. (2006). The relationship between depth of vocabulary knowledge and L2 learners' lexical inferencing strategy use and success. *Modern Language Journal*, 90(3), 387-401. <https://doi.org/10.1111/j.1540-4781.2006.00431.x>
- Nation, I. S. P. (1983). Testing and teaching vocabulary. *Guidelines*, 5(1), 12-25.
- Nation, I. S. P. (1990). *Teaching and learning vocabulary*. New York: Newbury House. <https://doi.org/10.3138/cmlr.50.4.755>
- Nation, I. S. P. (2001). *Learning vocabulary in another language*. New York: Cambridge University Press. <https://doi.org/10.1017/cbo9781139524759>
- National Assessment of Adult Literacy*. (2003). Retrieved April 27, 2018, from National Center for Educational Statistics: http://nces.ed.gov/NAAL/fr_definition.asp
- Naz, S., Rasheed, T., & Rasheed, M. (2019). The role of smartphones in learning English: A study of learners' perspectives. *International Conference on Research in Humanities*, 17-28.

- Newton, J. (2001). Options for vocabulary learning through communication tasks. *ELT Journals*, 55(1), 30-37. <https://doi.org/10.1093/eltj/55.1.30>
- Ng, S. F., Hassan, N. S. I. C., Nor, N. H. M., & Malek, N. A. A. (2017). The relationship between smartphone use and academic performance: A case of students in a Malaysian tertiary institution. *Malaysian Online Journal of Educational Technology*, 5 (4), 58-70.
- North, D., Johnston, K., & Ophoff, J. (2014). The use of mobile phones by South African university students. *Issues in informing science and information technology*, 11, 115-138. <https://doi.org/10.28945/1984>
- Nunan, D. (1997). Designing and adapting materials to encourage learner autonomy. In P. Benson & P. Voller (Eds.), *Autonomy and independence in language learning* (pp. 192-203). London: Longman. <https://doi.org/10.4324/9781315842172-16>
- Nurweni, A., & Read, J. (1999). The English vocabulary knowledge of Indonesian university students. *English for Specific Purposes*, 18 (2), 161-175. [https://doi.org/10.1016/s0889-4906\(98\)00005-2](https://doi.org/10.1016/s0889-4906(98)00005-2)
- Oliveira, D., Pedro, L., & Santos, C. (2021). The Use of mobile applications in higher education classrooms: An exploratory measuring approach in the University of Aveiro. *Education Sciences*, 11(9), 484. <https://doi.org/10.3390/educsci11090484>
- OuYang, Y., & Yin, M.C. & Wang. P. (2010). Cognitive load and learning effects of mobile learning for the students with different learning styles. *International Journal of Mobile Learning and Organisation*, 4 (3), 281-293. <https://doi.org/10.1504/ijmlo.2010.033556>
- Oz, H. (2015). An investigation of preservice English teachers' perceptions of mobile assisted language learning. *English Language Teaching*, 8(2), 22-34. <https://doi.org/10.5539/elt.v8n2p22>
- Paas, F., Renkl, A. and Sweller, J. (2003). Cognitive load theory and instructional design: recent developments. *Educational Psychologist*, 38(1), 1-4. https://doi.org/10.1207/s15326985ep3801_1
- Paas, F.G.W.C, & van Merriënboer, J.J.G. (1994). Variability of worked examples and transfer of geometrical problem-solving skills: A cognitive load approach. *Journal of Educational Psychology*, 86 (1), 122-133. <https://doi.org/10.1037/0022-0663.86.1.122>
- Paivio, A. (1971). *Imagery and Verbal Processes*, Holt, Rinehart, and Winston, New York (Reprinted 1979, Erlbaum, Hillsdale, New Jersey).
- Palfreyman, D., & Smith, R.C. (2003). *Learner autonomy across cultures: Language education perspectives*. London: Macmillan. <https://doi.org/10.1057/9780230504684>
- Papadakis, S., Kalogiannakis, M., & Zaranis, N. (2016). Developing fundamental programming concepts and computational thinking with Scratch in preschool education: a case study. *International Journal of Mobile Learning and Organisation*, 10 (3), 187-202. <https://doi.org/10.1504/ijmlo.2016.077867>

- Papadakis, S., Kalogiannakis, M., & Zaranis, N. (2017). Designing and creating an educational app rubric for preschool teachers. *Education and Information Technologies*, 22(6), 3147-3165. <https://doi.org/10.1007/s10639-017-9579-0>
- Park, M. (2014). A task-based needs analysis for mobile-assisted language learning in college ESL contexts. In J. B. Son (Ed.), *Computer-assisted language learning: Learners, teachers and tools* (pp. 47-68). Newcastle upon Tyne, UK: Cambridge Scholars Publishing.
- Patel, C. (2013). Use of multimedia technology in teaching and learning communication skill: An analysis. *International Journal of Advancements in Research & Technology*, 2(7), 116-123.
- Pedersen, S., & Liu, M. (2003). Teachers' beliefs about issues in the implementation of a student-centered learning environment. *Educational Technology Research & Development*, 51(2), 57-76. <https://doi.org/10.1007/bf02504526>
- Perfetti, C. A. (2007). Reading ability: Lexical quality to comprehension. *Scientific Studies of Reading*, 11, 357-383. <https://doi.org/10.1080/10888430701530730>
- Plester, B., Wood, C., & Bell, V. (2008). Txt msg n school literacy: Does texting and knowledge of text abbreviations adversely. *Literacy*, 42(3), 137-144. <https://doi.org/10.1111/j.1741-4369.2008.00489.x>
- Pollara, P. & Broussard, K. (2011). Student perceptions of mobile learning: A review of current research. In Society for information technology & teacher education international conference (Vol. 2011, pp. 1643-1650).
- Pollara, P., & Broussard, K. (2011). *Student Perceptions of Mobile Learning: A Review of Current Research*. In Proceedings of Society for Information Technology & Teacher Education International conference 2011, Chesapeake, VA: AACE.
- Powell, D., & Dixon, M. (2011). Does SMS text messaging help or harm adults' knowledge of standard spelling? *Journal of Computer Assisted Learning* 27 (1), 58-66. <https://doi.org/10.1111/j.1365-2729.2010.00403.x>
- Purwaningrum, Y. A., & Yusuf, N.F. (2019). Students' voice towards the integrations of MALL to promote autonomous language learning. *ICIET 2019: Proceeding of the 2019 7th International Conference on Information and Education Technology*, 320-325. <https://doi.org/10.1145/3323771.3323823>
- Qian, D. D. (1999). Assessing the roles of depth and breadth of vocabulary knowledge in reading comprehension. *Canadian Modern Language Review*, 56(2), 282-307. <https://doi.org/10.3138/cmlr.56.2.282>
- Qian, D. D. (2002). Investigating the relationship between vocabulary knowledge and academic reading comprehension: an assessment perspective. *Language Learning*, 52(3), 513- 536. <https://doi.org/10.1111/1467-9922.00193>
- Qian, D. D. (2005). Demystifying lexical Inferencing: The role of aspects of vocabulary knowledge. *TESL Canada Journal*, 22(2), 34-54. <https://doi.org/10.18806/tesl.v22i2.86>

- Qian, D.D., & Schedl, M. (2004). Evaluation of an in-depth vocabulary knowledge measure for assessing reading comprehension. *Language Testing*, 21(1), 28-52. <https://doi.org/10.1191/0265532204lt273oa>
- Quinn, S., & Oldmeadow, J. A. (2013). Is the i-generation a "we" generation? Social networking use among 9- to 13-year-olds and belonging. *British Journal of Developmental Psychology*, 31(1), 136-142. <https://doi.org/10.1111/bjdp.12007>
- Qureshi, M. I., Khan, N., Ahmad Hassan Gillani, S. M., & Raza, H. (2020). A systematic review of past decade of mobile learning: What we learned and where to go. *International Journal of Interactive Mobile Technologies*, 14(6), 67-81. <https://doi.org/10.3991/IJIM.V14I06.13479>
- Rahamat, R., Shah, M. P., Din, R., Puteh, N. Sh., Aziz, A. J., Norman, H., & Embi, A. M. (2012). Measuring learners' perceived satisfaction towards e-learning material and environment. *Wseas Transactions on Advances in Engineering Education*, 9(3), 72-83.
- Rahimi, M., & Miri, S. S. (2014). The impact of mobile dictionary use on language learning. *Procedia- Social and Behavioral Sciences*, 98, 1469-1474. <https://doi.org/10.1016/j.sbspro.2014.03.567>
- Rahman, Z. U., & Iqbal, Z. (2019). Relationship of Breadth and Depth of Vocabulary Knowledge and Reading Comprehension in Learning English. *Bulletin of Education and Research*, 41(3), 89-100.
- Ramamurthy, V., & Rao, S. (2015). Smartphones promote autonomous learning in ESL classrooms. *Malaysian Online Journal of Educational Technology*, 3(4), 23-35.
- Read, J. (1989). *Towards a deeper assessment of vocabulary knowledge*. Paper presented at the 8th annual meeting of the International Association of Applied Linguistics. (Sydney, New South Wales, Australia, August 16-21, 1987). Washington, DC: Eric Clearing House on Languages and Linguistics. (Eric Document Reproduction Service No. ED 301048).
- Read, J. (1993). The development of a new measure of L2 vocabulary knowledge. *Language Testing*, 10(3), 355-371. <https://doi.org/10.1177/026553229301000308>
- Read, J. (1998). *Validating a test to measure depth of vocabulary knowledge*. In A. J. Kunnan (Ed.), *Language Testing Research Colloquium (17th: 1995: Long Beach, Calif.)*. *Validation in language assessment: Selected papers from 17th Language Testing Research Colloquium, Long Beach* (p. 41-60). Lawrence Erlbaum Associates Publishers.
- Read, J. (2000). *Assessing vocabulary*. Cambridge, UK: Cambridge University Press.
- Read, J. (2004). Plumbing the depths: How should the construct of vocabulary knowledge be defined? In B. Harley, & J. H. Hulstijn (Eds.), *Language Learning and Language Teaching. Vocabulary in a second language: Selection, acquisition and testing* (Vol. 10, pp. 209-227). Amsterdam/Philadelphia: John Benjamins Publishing Company. <https://doi.org/10.1075/llt.10.15rea>
- Reed, H. (2013). How mobile technology is changing our culture. *Journal of Information Systems Applied Research Systems*, 4(1), 39-48.

- Reporters Without Borders, (2012a). Internet Enemies Report 2012, (last accessed: 1/10/2014) available at: <http://bit.ly/RwoB12>
- Rezaei, A., Mai, N., & Pesaranghader, A. (2014). The effect of mobile applications on English vocabulary acquisition. *Jurnal Teknologi*, 68(2), 73-83. <https://doi.org/10.11113/jt.v68.2912>
- Richards, J. C. (1976). The role of vocabulary teaching. *TESOL Quarterly*, 10, 77-89. <https://doi.org/10.2307/3585941>
- Richards, J. C., & Rogers, T. S. (2001). *Approaches and methods in language teaching (2nd ed.)*. Cambridge, UK: Cambridge University Press.
- Roberts, C., Byram, M., Barro, A., Jordan, S., & Street, B. (2001). *Language learners as ethnographers*. Clevedon: Multilingual Matters.
- Robinson, P. (2001). Individual differences, cognitive abilities, aptitude complexes and learning conditions in second language acquisition. *Second Language Research*, 17 (4), 368-392. <https://doi.org/10.1177/026765830101700405>
- Rodríguez, A. I., Rianza, B. G., & Gómez, M. C. S. (2017). Collaborative learning and mobile devices: An educational experience in primary education. *Computers in Human Behavior*, 72, 664-677. <http://dx.doi.org/10.1016/j.chb.2016.07.019>
- Romero R., Zarranonandia T., Aedo I., & Díaz P. (2010). Designing usable educational material for English courses supported by mobile devices. In: G. Leitner, M. Hitz, A. Holzinger (Eds.), *HCI in work and learning, life and leisure. USAB 2010. Lecture Notes in Computer Science*, vol 6389, (pp. 373-386). Heidelberg, Germany: Springer. https://doi.org/10.1007/978-3-642-16607-5_25
- Rott, S. (1999). The effect of exposure frequency on intermediate language learner's incidental vocabulary acquisition and retention through reading. *Studies of Second Language Learning*, 21(4), 589-619. <https://doi.org/10.1017/s0272263199004039>
- Russell, D. (2002). Looking beyond the interface: activity theory and distributed learning. In Lea, M. and Nicoll, K. (Eds) *Distributed Learning: Social and Cultural Approaches to Practice, Design: Scenario-Based Design of Collaborative Systems*. Amsterdam, The Netherlands: IOS press.
- Rydland, V., Aukrust, V. G., & Fulland, H. (2012). How word decoding, vocabulary and prior topic knowledge predict reading comprehension: A study of language minority students in Norwegian fifth grade classrooms. *Journal of Reading and Writing*, 25(2), 465-482. <https://doi.org/10.1007/s11145-010-9279-2>
- Sadoski, M. & Paivio, A. (1994). A dual coding view of imagery and verbal processes in reading comprehension. In R. B. Ruddell, M. R. Ruddell, & H. Singer (Eds.), *Theoretical models and processes of reading* (pp. 582-601). 4th ed. Newark, DE: International Reading Association.

- Sadoski, M. & Paivio, A. (2001). *Imagery and text: A dual coding theory of reading and writing*. Mahwah, NJ: Lawrence Erlbaum.
- Sadoski, M. & Paivio, A. (2004). A dual coding theoretical model of reading. In R. B. Ruddell & N. J. Unrau (Eds.), *Theoretical models and processes of reading* (pp. 1329-1362). 5th ed. Newark, DE: International Reading Association. <https://doi.org/10.1598/0872075028.47>
- Sadoski, M. (1992). Imagination, cognition, and persona. *Rhetoric Review*, 10 (2), 266-278. <https://doi.org/10.1080/07350199209388971>
- Sadoski, M. (2005). A dual coding view of vocabulary learning. *Reading & Writing Quarterly: Overcoming Learning Difficulties*, 21(3), 221-238. <https://doi.org/10.1080/10573560590949359>
- Sadoski, M., Paivio, A., & Goetz, E. T. (1991). Commentary: A critique of schema theory in reading and a dual coding alternative. *Reading Research Quarterly*, 26 (4), 463-484. <https://doi.org/10.2307/747898>
- Saidouni, K., & Bahloul, A. (2016). Teachers' and students' attitudes towards using mobile assisted language learning in higher education. *Arab World English Journal*, 3(Special Issue on CALL), 123-140.
- Samsiah, B., & Azidah, A. Z. (2013). Adoption and application of mobile learning in the education industry. *Procedia-Social and Behavioral Sciences*, 90, 720-729. <https://doi.org/10.1016/j.sbspro.2013.07.145>
- Saran, M., & Seferoglu, G. (2010). Supporting foreign language vocabulary learning through multimedia messages via mobile phones. *Hacettepe University Journal of Education*, 38, 252-266.
- Saran, M., Cagiltay, K. & Seferoglu, G. (2008). Use of mobile phones in language learning: Developing effective instructional materials. *5th International Conference on Wireless, Mobile and Ubiquitous Technologies in Education-WMUTE2008*. <https://doi.org/10.1109/wmute.2008.49>
- Saran, M., Seferoglu, G., & Cagiltay, K. (2012). Mobile language learning: Contribution of multimedia messages via mobile phones in consolidating vocabulary. *The Asia-Pacific Education Researcher*, 21(1), 181-190.
- Saricoban, A., Ozturan, T. (2013). Vocabulary learning on move: An investigation of mobile assisted vocabulary learning effect over students` success and attitude. *EKEV Academic Journal*, 17 (54), 213-224.
- Sato, T., Murase, F., & Burden, T. (2015). Is mobile-assisted language learning really useful? An examination of recall automatization and learner autonomy. In F. Helm, L. Bradley, M. Guarda, & S. Thouësny (Eds), *Critical CALL – Proceedings of the 2015 EUROCALL Conference*, Padova, Italy (pp. 495-501). Dublin: Research-publishing.net. <http://dx.doi.org/10.14705/rpnet.2015.000382>

- Schick, C. (2007). The mobile lifestyle: How the fusion of the mobile and the Internet have changed the way we live, learn, and play. *Keynote Speaker of the 6th International Conference on Mobile Learning*. Melbourne, Australia.
- Schmitt, N. (2000). *Vocabulary in language teaching*. Cambridge: Cambridge University Press. <https://doi.org/10.1017/s0272263101273057>
- Schmitt, N. (2008). Review article: Instructed second language vocabulary learning. *Language Teaching Research*, 12(3), 329-363. <https://doi.org/10.1177/1362168808089921>
- Schmitt, N. (2014). Size and depth of vocabulary knowledge: what the research shows. *Language Learning*, 64 (4), 913-951. <https://doi.org/10.1111/lang.12077>
- Schmitt, N., & Meara, P. (1997). Researching vocabulary through a word knowledge framework: Word associations and verbal suffixes. *Studies in Second Language Acquisition* 19(1), 17-36. <https://doi.org/10.1017/s0272263197001022>
- Schmitt, N., & Schmitt, D. R. (1995). Vocabulary notebooks: Theoretical underpinnings and practical suggestions. *English Language Teaching Journal*, 49(2), 133-143. <http://dx.doi.org/10.1093/elt/49.2.133>
- Schmitt, N., & Schmitt, D., & Clapham, C. (2001). Developing and exploring the behavior of two new versions of the vocabulary levels test. *Language Testing*, 18(1), 55-88. <https://doi.org/10.1177/026553220101800103>
- Schoonen, R., & Verhallen, M. (2008). The Assessment of Deep Word Knowledge in Young First and Second Language Learners. *Language Testing*, 25, 211-236. <http://dx.doi.org/10.1177/0265532207086782>
- Sell, E. M. (2018). Employing text messaging as an instructional tool: effects on academic achievement and sense of connectedness. (unpublished doctoral dissertation). Liberty University.
- Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it?. *Journal of Research in Innovative Teaching & Learning*, 10(1), 4-33. <https://doi.org/10.1108/JRIT-10-2016-0007>
- Shadiev, R., Hwang, W. Y., & Huang, Y. M. (2017). Review of research on mobile language learning in authentic environments. *Computer Assisted Language Learning*, 30(3-4), 284-303. <https://doi.org/10.1080/09588221.2017.1308383>
- Shadiev, R., Liu, T., & Hwang, W. Y. (2019). Review of research on mobile-assisted language learning in familiar, authentic environments. *British Journal of Educational Technology*, 51 (3), 709-720. <https://doi.org/10.1111/bjet.12839>
- Shadiev, R., Sun, A., & Huang, Y. M. (2019). A study of the facilitation of cross-cultural understanding and intercultural sensitivity using speech-enabled language translation technology. *British Journal of Educational Technology*, 50(3), 1415-1433. <https://doi.org/10.1111/bjet.12648>

- Shank, M. J. (2006). Teacher storytelling: A means for creating and learning within a collaborative space. *Teaching and Teacher Education*, 22(6), 711-721. <https://doi.org/10.1016/j.tate.2006.03.002>
- Sharma, S. K., & Kitchens, F. L. (2004). Web services architecture for m-learning. *Electronic Journal on E-Learning*, 2(1), 203-216.
- Sharples, M. (2000). The design of personal mobile technologies for lifelong learning. *Computers & Education*, 34(3), 177-193. [https://doi.org/10.1016/s0360-1315\(99\)00044-5](https://doi.org/10.1016/s0360-1315(99)00044-5)
- Sharples, M. (Ed.) (2006). Big issues in mobile learning. Report of a workshop by the Kaleidoscope Network of Excellence Mobile Learning Initiative, University of Nottingham, UK.
- Shen, Z. (2008). The roles of depth and breadth of vocabulary knowledge in EFL reading performance. *Asian Social Science*, 4 (12), 135-137. <https://doi.org/10.5539/ass.v4n12p135>
- Short Message Service. (2008). Retrieved November 16, from http://en.wikipedia.org/wiki/Short_message_service.
- Singhal, M. (1997). The internet and foreign language education: Benefits and challenges. *The Internet TESL Journal*, 3(6). Retrieved from <http://iteslj.org/Articles/Singhal-Internet.html>.
- Smith, C. M. M., & Sutherland, M. J. (2003). Creating a community of teacher-learners. *Journal of In-service Education*, 29(3), 423-438. <https://doi.org/10.1080/13674580300200284>
- Smith, S. D., Salaway, G., & Caruso, J. B. (2009). The ECAR study of undergraduate students and information technology, EDUCAUSE Center for Applied Research, Available at: <http://www.educause.edu/library/resources/ecar-study-undergraduate-students-andinformation-technology-2009>
- So, S. (2009). The development of a SMS-based teaching and learning system. *Journal of Educational Technology Development and Exchange*, 2 (1), 113-124. <https://doi.org/10.18785/jetde.0201.08>
- Soleimani, E., Ismail, K., & Mustaffa, R. (2014). The acceptance of mobile assisted language learning (MALL) among postgraduate ESL students in UKM. *Procedia - Social and Behavioral Sciences*, 118, 457-462. <https://doi.org/10.1016/j.sbspro.2014.02.062>
- Stæhr, L. S. (2009). Vocabulary knowledge and advanced listening comprehension in English as a foreign language. *Studies in Second Language Acquisition*, 31(4), 577-607. <https://doi.org/10.1017/S0272263109990039>
- Stahl, S. A. & Fairbanks, M. A. (1986). The effects of vocabulary instruction: A model-based meta-analysis. *Review of Educational Research*, 56 (1), 72-110. <https://doi.org/10.3102/00346543056001072>
- Stahl, S. A., Richek, M. A., & Vandevier, R. J. (1991). Learning meaning vocabulary through listening: A sixth-grade replication. In J. Zutell & S. McCormick (Eds.), *Learner*

- factors=teacher factors: Issues in literacy research and instruction (pp. 185-192). Chicago, IL: National Reading Conference.
- Stockwell, G. (2007). Vocabulary on the move: Investigating an intelligent mobile phone-based vocabulary tutor. *Computer-Assisted Language Learning*, 20(4), 365-83. <https://doi.org/10.1080/09588220701745817>
- Stockwell, G. (2008). Investigating learner preparedness for and usage patterns of mobile learning. *ReCALL* 20(3), 253-270. <https://doi.org/10.1017/s0958344008000232>
- Stockwell, G. (2010). Using mobile phones for vocabulary activities: Examining the effect of platform. *Language Learning & Technology*, 14 (2), 95-110.
- Stošić, L., & Bogdanović, M. (2013). M-learning-a new form of learning and education. *International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE)*, 1(2), 114-118. <http://www.ijcrsee.com/index.php/ijcrsee/article/view/133>
- Suneetha, Y. (2013). MALL (mobile assisted language learning): A paradise for English language learners. *International Journal of English Language & Translation Studies*, 1(2), 91-99.
- Sung, Y., Chang, K., & Yang, J. (2015). How effective are mobile devices for language learning? A meta-analysis. *Educational Research Review*, 16, 68-84. <https://doi.org/10.1016/j.edurev.2015.09.001>
- Sutarsyah, C., Nation, I. S. P., & Kennedy, G. (1994). How useful is EAP vocabulary for ESP? A corpus based study. *RELC Journal*, 25(2), 34-50. <https://doi.org/10.1177/003368829402500203>
- Suwantarathip, O. & Orawiwanakul, W. (2015). Using mobile-assisted exercises to support students' vocabulary skill development. *Turkish Online Journal of Educational Technology*, 14(1), 163-171.
- Swanborn, M. S. L. & de Glopper, K. (1999). Incidental word-learning while reading: A meta-analysis. *Review of Educational Research*, 69 (3), 261-285. <https://doi.org/10.3102/00346543069003261>
- Sweller, J. (1988). Cognitive load during problem solving: effects on learning. *Cognitive Science*, 12 (2), 257-285. https://doi.org/10.1207/s15516709cog1202_4
- Sweller, J., Van Merriënboer, J. J. G., & Paas, F. G. W. C. (1998). Cognitive architecture and instructional design. *Educational Psychology Review*, 10 (3), 251-296. <https://doi.org/10.1023/a:1022193728205>
- Tabatabaei, O., & Goojani, A. (2012). The impact of text messaging on vocabulary learning of Iranian EFL learners. *Cross Cultural Communication*, 8(2), 47-55.
- Tafazoli, D., & Chirimbu, S. C. (2013) (Eds.). *Language and technology: Computer assisted language learning*. Tehran, Iran: Khate Sefid Press.

- Tai, Y., & Ting, Y. L. (2011). Adoption of mobile technology for language learning: Teacher attitudes and challenges. *The JALT CALL Journal*, 7(1), 3-18. <https://doi.org/10.29140/jaltcall.v7n1.105>
- Takahashi, S. (2011). Co-constructing efficacy: A 'communities of practice' perspective on teachers' efficacy beliefs. *Teaching and Teacher Education*, 27 (4), 732-741. <https://doi.org/10.1016/j.tate.2010.12.002>
- Tang, E., & Nesi, H. (2003). Teaching vocabulary in two Chinese classrooms: Schoolchildren's exposure to English words in Hong Kong and Guangzhou. *Language Teaching Research*, 7(1), 65-97. <https://doi.org/10.1191/1362168803lr113oa>
- Tayebinika, M., & Puteh, M. (2012). Txt msg n English language literacy. *Procedia - Social and Behavioral Sciences* 66, 97-105. <https://doi.org/10.1016/j.sbspro.2012.11.251>
- Thorndike, E. L., & Lorge, I. (1944). *The teacher's word book of 30000 words*. Teachers College, Columbia University.
- Thornton, P., & Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of Computer-Assisted Learning*, 21(3), 217-228. <https://doi.org/10.1111/j.1365-2729.2005.00129.x>
- Todd, R. W., & Tepsuriwong, S. (2008). Mobile mazes: Investigating a mobile phone game for language learning. *CALL-EJ*, 9(1), 1-10.
- Tomita, D. (2009). Text messaging and implications for its use in education. In *TCC* (pp. 184-193). TCCHawaii.
- Tran, T. Q., & Duong, T. M. (2018). EFL learners' perceptions of factors influencing learner autonomy development. *Kasetsart Journal of Social Sciences*, 41, 194-199. <https://doi.org/10.1016/j.kjss.2018.02.009>
- Traxler, J. (2005). Case studies: Introduction and overview. In: A. Kukulska-Hulme and J. Traxler (Eds), *Mobile learning: A handbook for educators and trainers*, pp 70-75. London: Routledge.
- Trebbi, T. (2011). Reinforcing the what, the why and the how: challenges and change for language learner autonomy. *Innovation in Language Learning and Teaching*, 5 (2), 101-110. <https://doi.org/10.1080/17501229.2011.577527>
- TxtTools, "SMS Text Messaging for Education," 2008. [Online]. Available: www.texttools.co.uk.
- Uden, L. (2007). Activity theory for designing mobile learning. *International Journal of Mobile Learning and Organisation*, 1 (1), 81-102. <https://doi.org/10.1504/ijmlo.2007.011190>
- Uzunboylu, H. & Ozdamli, F. (2011). Teacher perception for m-learning: scale development and teachers' perceptions. *Journal of Computer Assisted Learning*, 27 (16), 544-556. <https://doi.org/10.1111/j.1365-2729.2011.00415.x>
- Varol, B., & Yilmaz, S. (2010). Similarities and differences between female and male learners: inside and outside class autonomous language learning activities. *Procedia – Social and Behavioral Sciences*, 3, 273-274. <https://doi.org/10.1016/j.sbspro.2010.07.038>

- Verheijen, L. (2013). The effects of text messaging and instant messaging on literacy. *English Studies*, 94 (5), 582-602. <https://doi.org/10.1080/0013838x.2013.795737>
- Vermeer, A. (2001). Breadth and depth of vocabulary in relation to L1/L2 acquisition and frequency of input. *Applied Psycholinguistics*, 22 (2), 217-34. <https://doi.org/10.1017/s0142716401002041>
- Viberg, O., & Grönlund, Å. (2012). Mobile assisted language learning: a literature review. In: M. Specht, M. Sharples & J. Multisilta, (Eds.), *Proceedings of the 11th International Conference on Mobile and Contextual Learning* (pp. 9-16). Helsinki, Finland.
- Vygotsky, L.S. (1978). *Mind and Society*. Cambridge, MA: Harvard University Press.
- Wallace, S., Clark, M., & White, J. (2012). It's on my iPhone': attitudes to the use of mobile computing devices in medical education, a mixed-methods study. *BMJ open*, 2(4), e001099. <http://dx.doi.org/10.1136/bmjopen-2012-001099>
- Wang, B. T. (2017). Designing mobile apps for English vocabulary learning. *International Journal of Information and Education Technology*, 7 (4), 279-283. <https://doi.org/10.18178/ijiet.2017.7.4.881>
- Wang, Y. H., & Shih, S. K. H. (2015). Mobile-assisted language learning: Effects on EFL vocabulary learning. *International Journal of Mobile Communications*, 13(4), 358-375. <http://dx.doi.org/10.1504/IJMC.2015.070060>
- Wang, Y. S., Wu, M. C., & Wang, H. Y. (2009). Investigating the determinants and age and gender differences in the acceptance of mobile learning. *British Journal of Educational Technology*, 40 (1), 92-118. <https://doi.org/10.1111/j.1467-8535.2007.00809.x>
- Warren, S. J., & Wakefield, J. S. (2012). Learning and teaching as communicative actions: Social media as educational tool. In K. K. Seo (Ed), *Using social media effectively in the classroom* (pp. 98-113). New York, NY: Routledge. <https://doi.org/10.4324/9780203101490-15>
- Warschauer, M. (2011). Emerging technologies for autonomous language learning. *Studies in Self-Access Learning Journal*, 2(3), 107-118. https://sisaljournal.org/archives/sep11/warschauer_liaw/?like=1&source=post_flair&_wpnonce=134bd2d71b
- Warschauer, M., Turbee, L., & Roberts, B. (1996). Computer learning networks and student empowerment. *System*, 24 (1), 1-14. [https://doi.org/10.1016/0346-251x\(95\)00049-p](https://doi.org/10.1016/0346-251x(95)00049-p)
- Webb, S., Sasao, Y., & Ballance, O. (2017). The updated Vocabulary Levels Test: Developing and validating two new forms of the VLT. *ITL-International Journal of Applied Linguistics*, 168(1), 34-70. <https://doi.org/10.1075/itl.168.1.02web>
- Wegerif, R. (2004). The role of educational software as a support for teaching and learning conversations. *Computers and Education*, 43(1-2), 179-191. <https://doi.org/10.1016/j.compedu.2003.12.012>

- Wenger, E., & Traynor, B. (2015). Communities of practice: a brief introduction. <http://wenger-trayner.com/wp-content/uploads/2015/04/07-Brief-introduction-to-communities-of-practice.pdf>
- Wesche, M., & Paribakhat, T. S. (1996). Assessing second language vocabulary knowledge: Depth versus breadth. *Canadian Modern Language Review*, 53(1), 13-40. <https://doi.org/10.3138/cmlr.53.1.13>
- West, D. M. (2013). Mobile Learning: Transforming Education, Engaging Students, and Improving Outcomes, Centre for Technology Innovation at Brookings. Retrieved from http://www.brookings.edu/~media/research/files/papers/2013/09/17-mobile-learning-education-engaging-students-west/brookingsmobilelearning_final.pdf.
- West, M. (1953). *A general service list of English words*. London: Longman.
- White, J., & Mills, D. (2014). Examining attitudes towards and usage of smartphone technology among Japanese university students studying EFL. *CALL-EJ*, 15(2), 1-15.
- White, T. G., Power, M. A., & White, S. (1989). Morphological analysis: Implications for teaching and understanding vocabulary growth. *Reading Research Quarterly*, 24 (3), 283-304. <https://doi.org/10.2307/747771>
- Williams, Z. (2013). The use of multimedia material in teaching Chinese as a second language and pedagogical implications. *Masters Theses 1896 - February 2014*. Paper 1016. <http://scholarworks.umass.edu/theses/1016>
- Wolfe, P., & Nevills, P. (2004). *Building the reading brain: PreK-3*. Thousand Oaks, CA: Corwin Press.
- Wong, L. -H., & Looi, C. -K. (2010). Vocabulary learning by mobile-assisted authentic content creation and social meaning-making: Two case studies. *Journal of Computer Assisted Learning*, 26(5), 421-433. <https://doi.org/10.1111/j.1365-2729.2010.00357.x>
- Wood, C., Kemp, N., Waldron, S., & Hart, L. (2014). Grammatical understanding, literacy and text messaging in school children and undergraduate students: A concurrent analysis. *Computers and Education*, 70, 281-290. <https://doi.org/10.1016/j.compedu.2013.09.003>
- Wu, Q. (2015). Pulling mobile assisted language learning (MALL) into the mainstream: MALL in broad practice. *PloS One*, 10(5), e0128762. <https://doi.org/10.1371/journal.pone.0128762>
- Xu, Q. (2016). A brief study on English autonomous learning ability based on mobile learning in EFL curriculum. *Canadian Social Science*, 12(11), 114-118. <http://dx.doi.org/10.3968/%25x>
- Xue, G., & Nation, I. S. P. (1984). A university word list. *Language Learning and Communication*, 3(2), 215-229.
- Yavuz, F. (2016). Do smartphones spur or deter learning: A WhatsApp case study. *International Journal of Educational Sciences*, 15(3), 408-415. <https://doi.org/10.1080/09751122.2016.11890551>

- Yengin, I., Adem, K., Dilek, K., & Hüseyin, U. (2011). Is SMS still alive for education: Analysis of educational potentials of SMS technology? *Procedia Computer Science*, 3, 1439-1445. <http://dx.doi.org/10.1016/j.procs.2011.01.027>.
- Yengin, I., Karahoca, D., Karahoca, A. and Yücel, A. (2010) Roles of teachers in e-learning: how to engage students and how to get free e-learning and the future. *Procedia - Social and Behavioral Sciences*, 2 (2), 5775-5787. <https://doi.org/10.1016/j.sbspro.2010.03.942>
- Yunus, M. M., & Arshad, N. D. M. (2015). ESL teachers' perceptions toward the practices and prospects of autonomous language learning. *Asian Social Science*, 11(2), 41-51. <https://doi.org/10.5539/ass.v11n2p41>
- Zaranis, N., Kalogiannakis, M., & Papadakis, S. (2013). Using Mobile Devices for Teaching Realistic Mathematics in Kindergarten Education. *Creative Education*, 04(07), 1-10. <https://doi.org/10.4236/ce.2013.47a1001>
- Zareva, A. (2005). Models of lexical knowledge assessment of second language learners of English at higher levels of language proficiency. *System*, 33(4), 547-562. <https://doi.org/10.1016/j.system.2005.03.005>
- Zhan, H., & Cheng, H. (2014). The Role of Technology in Teaching and Learning Chinese Characters. *International Journal of Technology in Teaching and Learning*, 10(2). Retrieved from <https://commons.erau.edu/publication/1097>.
- Zhang, H., Song, W., & Burston, J. (2011). Reexamining the effectiveness of vocabulary learning via mobile phones. *Turkish Online Journal of Educational Technology*, 10(3), 203-214. Retrieved from <https://files.eric.ed.gov/fulltext/EJ944968>.
- Zhang, L. J., & Annual, S. B. (2008). The role of vocabulary in reading comprehension. *RELC*, 39(1), 51-76. <https://doi.org/10.1177/0033688208091140>
- Zhang, L. X., & Li, X. X. (2004). A comparative study on learner autonomy between Chinese students and west European students. *Foreign Language World*, 4, 15-23.
- Zheng, R. (2009). *Cognitive effects of multimedia learning (Premier reference source)*. Hershey, NY: Information Science Reference. <https://doi.org/10.4018/978-1-60566-158-2>
- Ziden, A. A., Rosli, M., Gunasegaran, T., & Azizan, S. N. (2017). Perceptions and Experience in Mobile Learning via SMS A Case Study of Distance Education Students in a Malaysian Public University. *International Journal of Interactive Mobile Technologies (IJIM)*, 11(1), 116-132. <https://doi.org/10.3991/ijim.v11i1.6332>

APPENDICES

Appendix A:

Oxford Placement Test (OPT)

Oxford University Press and University of Cambridge Local Examinations Syndicate

Name:

Date:

This test is divided into two parts:

Part One (Questions 1 – 40)

Part Two (Questions 41 – 60)

Do not start this part unless told to do so by your test supervisor.

Time: 55 minutes

Part 1

Questions 1 – 5

Where can you see these notices?

For questions 1 to 5, mark one letter A, B or C on your Answer Sheet.

1. Please leave your room key at reception

A. in a shop

B. in a hotel

C. in a taxi

2. Foreign money changed here

A. in a library

B. in a bank

C. in a police station

3. Afternoon show begins at 2 pm

A. outside a theatre

B. outside a supermarket

C. outside a restaurant

4. Closed for holidays

A. at a travel agent's

B. at a music school

C. at a restaurant

5. Lessons start again on the 8th January

A. at a cinema

B. in a hotel

C. on a camp-site

Questions 6 – 10

- In this section you must choose the word which best fits each space in the text below.
- For questions 6 to 10, mark **one** letter **A**, **B** or **C** on your Answer Sheet.

Scotland

Scotland is the north part of the island of Great Britain. The Atlantic Ocean is on the west and the North Sea on the east. Some people (6) Scotland speak a different language called Gaelic.

There are (7) five million people in Scotland, and Edinburgh is (8) most famous city.

Scotland has many mountains; the highest one is called 'Ben Nevis'. In the south of Scotland, there are a lot of sheep. A long time ago, there (9) many forests, but now there are only a (10) Scotland is only a small country, but it is quite beautiful.

- | | | | |
|-----|----------|------------|----------|
| 6. | A. on | B. in | C. at |
| 7. | A. about | B. between | C. among |
| 8. | A. his | B. your | C. its |
| 9. | A. is | B. were | C. was |
| 10. | A. few | B. little | C. lot |

Questions 11 – 20

- In this section you must choose the word which best fits each space in the texts.
- For questions 11 to 20, mark **one** letter **A**, **B**, **C** or **D** on your Answer Sheet.

Alice Guy Blaché

Alice Guy Blaché was the first female film director. She first became involved in cinema whilst working for the Gaumont Film Company in the late 1890s. This was a period of great change in the cinema and Alice was the first to use many new inventions, (11) sound and color.

In 1907 Alice (12) to New York where she started her own film company. She was (13) successful, but, when Hollywood became the centre of the film world, the best days of the independent New York film companies were (14) When Alice died in 1968, hardly anybody (15) her name.

- | | | | | |
|-----|-------------|--------------|----------------|----------------|
| 11. | A. bringing | B. including | C. containing | D. supporting |
| 12. | A. moved | B. ran | C. entered | D. transported |
| 13. | A. next | B. once | C. immediately | D. recently |

46. A. earning B. work C. income D. job
47. A. market B. purchase C. commerce D. sale
48. A. took up B. set out C. made for D. got round
49. A. wealth B. fund C. cash D. fortune
50. A. receipt B. benefit C. profit D. allowance

Questions 51 – 60

- In this section you must choose the word or phrase which best completes each sentence.
- For questions 51 to 60, mark **one** letter **A, B, C** or **D** on your Answer Sheet.

51. Roger's manager to make him stay late if he hadn't finished the work.

- A. insisted C. threatened
B. warned D. announced

52. By the time he has finished his week's work, John has hardly energy left for the weekend.

- A. any C. no
B. much D. same

53. As the game to a close, disappointed spectators started to leave.

- A. led C. approached
B. neared D. drew

54. I don't remember the front door when I left home this morning.

- A. to lock C. locked
B. locking D. to have locked

55. I to other people borrowing my books: they always forget to return them.

- A. disagree C. dislike
B. avoid D. object

Appendix B:

Preliminary English Test (PET)

Name: _____
Class: _____
Date: _____

PET Practice Test ▶ Reading

PET

PET Practice Test PAPER 1 • Reading and Writing

1 hour 30 minutes

Answer all questions. Write your answers clearly on the separate answer sheet. Use a pencil.

Reading Part 1

Questions 1–5

Look at the text in each question.

What does it say?

Mark the letter A, B, or C on your answer sheet.

Example:

0

All Staff

This restaurant is closed for building works.

The café on level three is serving hot meals until we open again in March.

- A It's not possible to eat in this building until March.
- B There are no refreshments in the café or the restaurant today.
- C Hot meals are temporarily available in the café.

Answer:

0	A	B	C
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

1

There are still places available on the London trip. Anyone who wants to go but hasn't booked must contact the office by Thursday.

- A Everyone who is going to London must go to the office.
- B It's too late to book a place on the trip to London.
- C If you book before Thursday you can go on the trip.

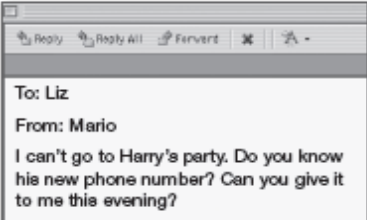
2

Do not leave anything in your locker overnight.

- A Remember to put everything inside your locker at night.
- B You must take your things home at the end of the day.
- C You can only use the lockers in the evenings.

Part 1

3



To: Liz
From: Mario
I can't go to Harry's party. Do you know his new phone number? Can you give it to me this evening?

What does Mario want Liz to do?

- A Phone Harry to say he can't go to the party.
- B Give him Harry's details later today.
- C Tell Harry what his new phone number is.

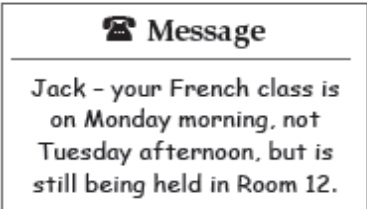
4



**THE CLOTHES
SHOP
Sale**
Today Only
Everything Half-Price

- A Everything will be more expensive tomorrow.
- B Half the clothes in the shop are in the sale.
- C Some things will be cheaper in the morning.

5



Message
Jack - your French class is on Monday morning, not Tuesday afternoon, but is still being held in Room 12.

Jack's French class

- A is being held one day later than expected.
- B will take place in a different room than planned.
- C has been changed to a different time of day.

Part 2

Questions 6–10

The people below are all looking for something to do in the summer.

On the opposite page there are eight summer activities.

Decide which activity would be the most suitable for the following people.

For questions 6–10, mark the correct letter (A–H) on your answer sheet.

6



Josh is a student and is looking for something that costs little or nothing. He's interested in different cultures particularly music, art and food.

7



Ben and Erica are looking for things their whole family can do together. Their young daughter is an active child who enjoys making things.

8



Fatima's quite sporty and would enjoy a short holiday. She'd like to try new activities in a place where she can make new friends too.

9



Emily and Tess belong to a theatre group and love performing. They would like to learn a new skill connected with the theatre.

10



Louis has just finished school. He's going to study film at university next year and wants to learn more about the film industry.

Part 2

Summer Activities

- A Town Centre Festival**
This year's festival is celebrating the culture of India. There will be performances in the town centre of Indian dancing and talks on the history of India will take place at the town hall.
- B The Arts Museum**
The Arts Museum is taking a look at British cinema this summer. There will be talks every day in the museum and a show every weekend. Cheap tickets are available but please book.
- C Dance Crazy**
We are holding a number of dance courses for children and teenagers over the summer. The courses last 4–6 weeks and at the end of the summer, we will organize a show for your family and friends to see how much you've learnt.
- D World Music Festival**
The three-day World Music Festival takes place in The Park on the first weekend of August. There will be bands from Africa, South America and Japan as well as some local bands. Book tickets on the Internet but watch out as they are very expensive and they're selling fast!
- E The Oratory Museum**
The museum is holding a Japanese art week starting from the 25th July. This is a free event that gives anybody the opportunity to come to the museum to look at Japanese art through the ages, to hear talks from Japanese artists and to try the Japanese food that will be on sale in the café that week.
- F Carnival Time**
The carnival takes place on the last weekend of August and this year there is a competition for the best costume. So, get active parents! Help your child create something wonderful, then bring them along to the special children's events including dance and art and craft.
- G Weekends Away**
Come on one of the activity weekends that we're organising this summer. The weekends take place at Upton Manor which is in the middle of the countryside. Choose activities from rock climbing and paragliding to horse riding and cycling. Our evening social events are a part of our weekends and people come back time after time.
- H Creation at the Museum**
Every Saturday morning in July and August, children aged 5–12 can develop and learn new skills at our free 2-hour art and craft workshops. Parents can leave their children in a safe and happy environment while they go shopping in the town centre or visit the café at the museum.

Part 3

Questions 11–20

Look at the sentences below about a trip to the island of Tasmania.
Read the text on page 6 to decide if each sentence is correct or incorrect.
If it is correct, mark **A** on your answer sheet.
If it is not correct, mark **B** on your answer sheet.

- 11 This tour operator only does tours on foot.
- 12 Visitors can choose additional activities.
- 13 The Tarkine coastal walk is always busy with tourists.
- 14 There is more than one guide with each tour.
- 15 The walk includes a visit to the rainforest.
- 16 Visitors are met at their accommodation.
- 17 The group cooks meals together.
- 18 You have to go for a walk on each day of the tour.
- 19 The trip ends where it began.
- 20 All equipment is provided by the tour operator.

Part 3

Discovering Tasmania

The island of Tasmania is separated from mainland Australia by the Bass Strait. The island is a place of natural beauty and has more than 2000 km of walking tracks and 18 national parks. If you go on a tour, you'll discover a wild and beautiful place where the people are friendly and the food is delicious. If you don't like walking there are other tours you can choose from including a river cruise and cycling. You can also combine your tour with fishing, sailing or sunbathing on the beach.

One of the most incredible places to walk is along the Tarkine coast which is located in the north-west of Tasmania. It's such a wild and remote area that you can easily complete your walk without seeing anyone apart from the members of your group and your two guides. The area contains the largest temperate rainforest in Australia which is home to more than 50 endangered species. It is also home to many Aboriginal Heritage Sites. Your guides will provide you with plenty of information about the area as you complete that part of your tour. During your tour, you'll come across rivers, mountain ranges, spectacular waterfalls, wildlife and long wild beaches. It will be an experience you won't easily forget.

Tour Itinerary:

Day 1:

You're picked up from your hotel in the town of Launceston and driven to the Tarkine. You then complete a three-hour walk through the forest before arriving at your camp at Mystery Creek. There you will enjoy a delicious meal cooked by your guides.

Day 2:

After breakfast, you continue deeper into the rainforest, passing some of the tallest trees in the world as you go, and stopping for lunch and then camp in the evening.

Day 3:

The highlight of today's trek is the Tarkine Falls, a beautiful 15 metre waterfall.

Day 4:

Today you can stay at the camp and bathe in the Tarkine Falls, or you can go for a day trek for more fantastic views of the forest.

Day 5:

After a last trek through the forest, you are picked up at about 4.00 p.m. and you arrive in Launceston at around 7 p.m.

The tour includes two professional guides, transport to and from the rainforest, all food while on the tours and all safety equipment. You should buy or hire recommended camping equipment including: backpacks, sleeping bags, sleep mats, head torches, rain coats and trousers.

Part 4

Questions 21–25

Read the text and questions below.

For each question, mark the correct letter A, B, C or D on your answer sheet.

Mark Hamilton: Fitness instructor on a cruise ship

I thought about working on a ship after I watched a TV documentary about life on a cruise ship. It seemed really exciting. At the time I was working at my local gym. I enjoyed the job, but I'd been there for a few years, I'd never lived in a different town and I'd never been abroad. I really liked the idea of travelling and seeing the world.

I looked on the Internet and found a website with hundreds of jobs on cruise ships. I applied for a few jobs but didn't get any. I then decided to give up my job in the gym and go on a trip around Australia. I wanted to get some experience of travelling. My boss was great and said I could go back any time, but luckily, when I returned from my trip, I got the next job I applied for. It was as a fitness instructor on a cruise ship going to the Caribbean.



Life on a cruise ship is busy, but that's what makes it exciting. A typical cruise ship has hundreds of employees from sailors to waiters and hairdressers to tour guides. I love the variety of my work. I teach aerobics, yoga, and fitness and I'm also a personal trainer in the gym. I work twelve hours a day and have two days off per cruise for sightseeing, but that's enough for me. It's always great to come home, because I miss my friends and family, but then I love leaving again too.

21 What is the writer's main purpose in writing the text?

- A to describe his life on a cruise ship
- B to talk about health and fitness
- C to explain why people enjoy going on cruises
- D to say how difficult his life is

Part 4

22 What would a reader learn about Mark before he joined the cruise ship?

- A He thought his job in the gym was boring.
- B He'd always lived in the same place.
- C He often travelled abroad.
- D He was a very good gym instructor.

23 Why did Mark give up his first job?

- A He was offered a job on a cruise ship.
- B He wanted to travel for a while.
- C He decided to go to the Caribbean.
- D He was asked to leave by his boss.

24 What does he find most difficult at work?

- A working long hours
- B living with hundreds of people
- C teaching so many activities
- D being away from home

25 Which of the following is the best description of the writer?

A **The young man who left home to follow his dream and never returned.**

B **The fitness instructor that gave up work to travel around the world.**

C **The man who never gave up looking for the job he wanted.**

D **The instructor who loves his job but is ready to leave.**

Part 5

Questions 26–35

Read the text below and choose the correct word for each space.
For each question, mark the correct letter A, B, C or D on your answer sheet.

Example:

0 A which B who C whose D when

Answer: 0

A	B	C	D
---	---	---	---

How to become more intelligent

Many scientists believe that people (0) do a variety of activities can improve their intelligence. It doesn't (26) how old you are, the more you learn, the stronger your brain can become. (27), scientists also think the opposite is true. (28) a person stops learning new things, their brain stops growing.

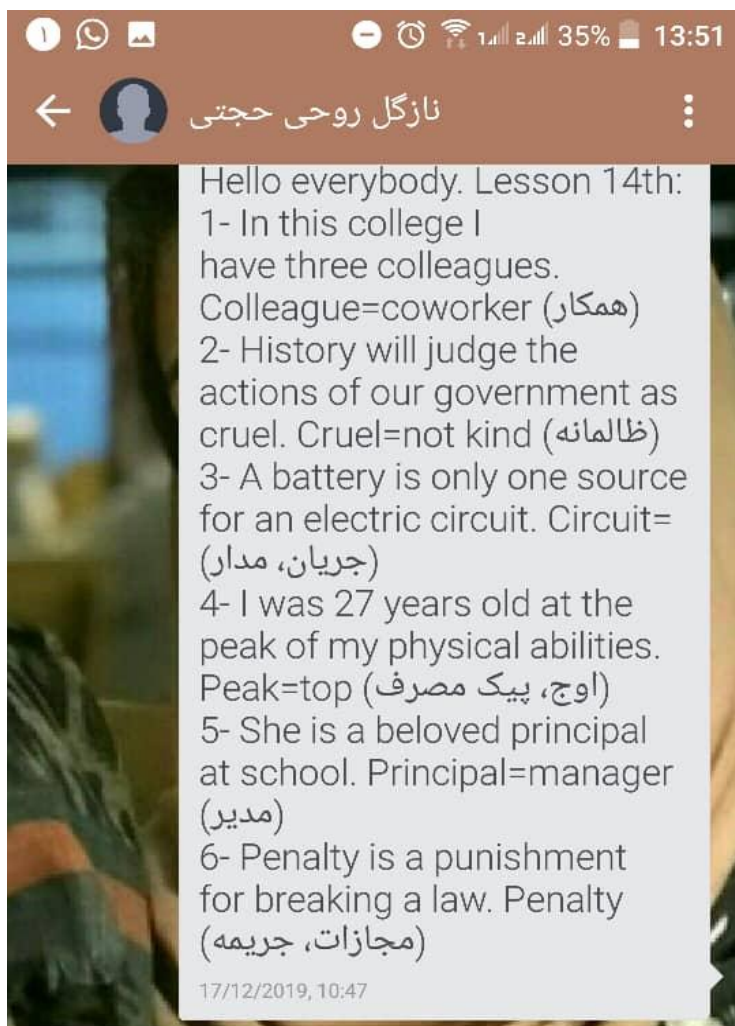
You can improve your brain in different (29) For example, you can read a book (30) a writer you haven't read before. You can (31) up a new hobby such as painting, cooking, writing stories or photography. Visiting new places is (32) an excellent thing to do. Read a (33) books on the subject before you go or look up information on the Internet.

If you start doing new things now, you'll soon (34) a difference. You'll have more to talk about and (35) will think you're an interesting person.

- 26 A mind B worry C matter D care
- 27 A So B Because C While D However
- 28 A If B Unless C Since D Until
- 29 A kinds B habits C methods D ways
- 30 A with B by C for D to
- 31 A bring B get C take D make
- 32 A also B too C well D else
- 33 A some B few C little D several
- 34 A notice B watch C look D appear
- 35 A all B everyone C anyone D none

Appendix C:

Sample Educational Short Messages

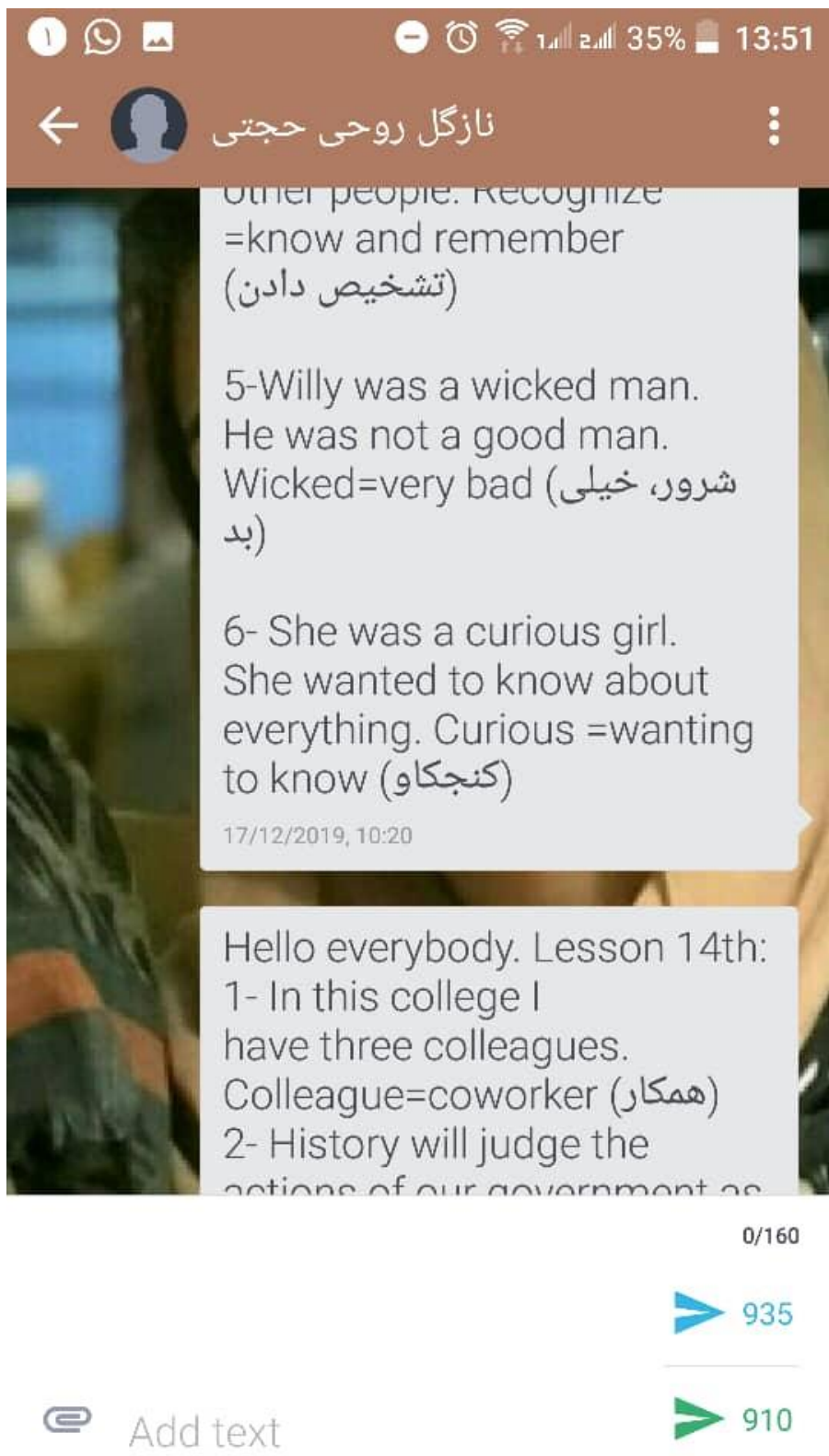


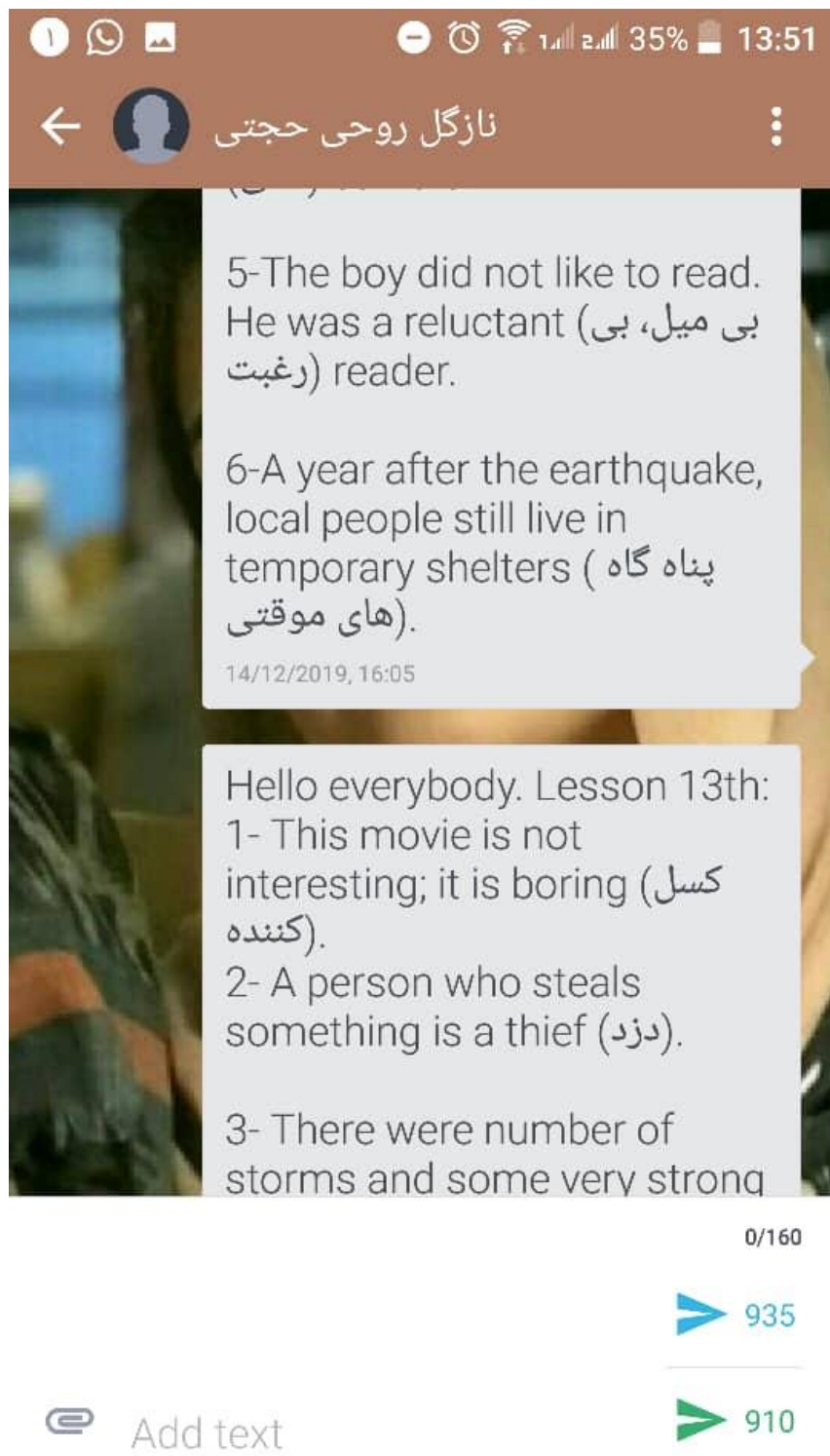
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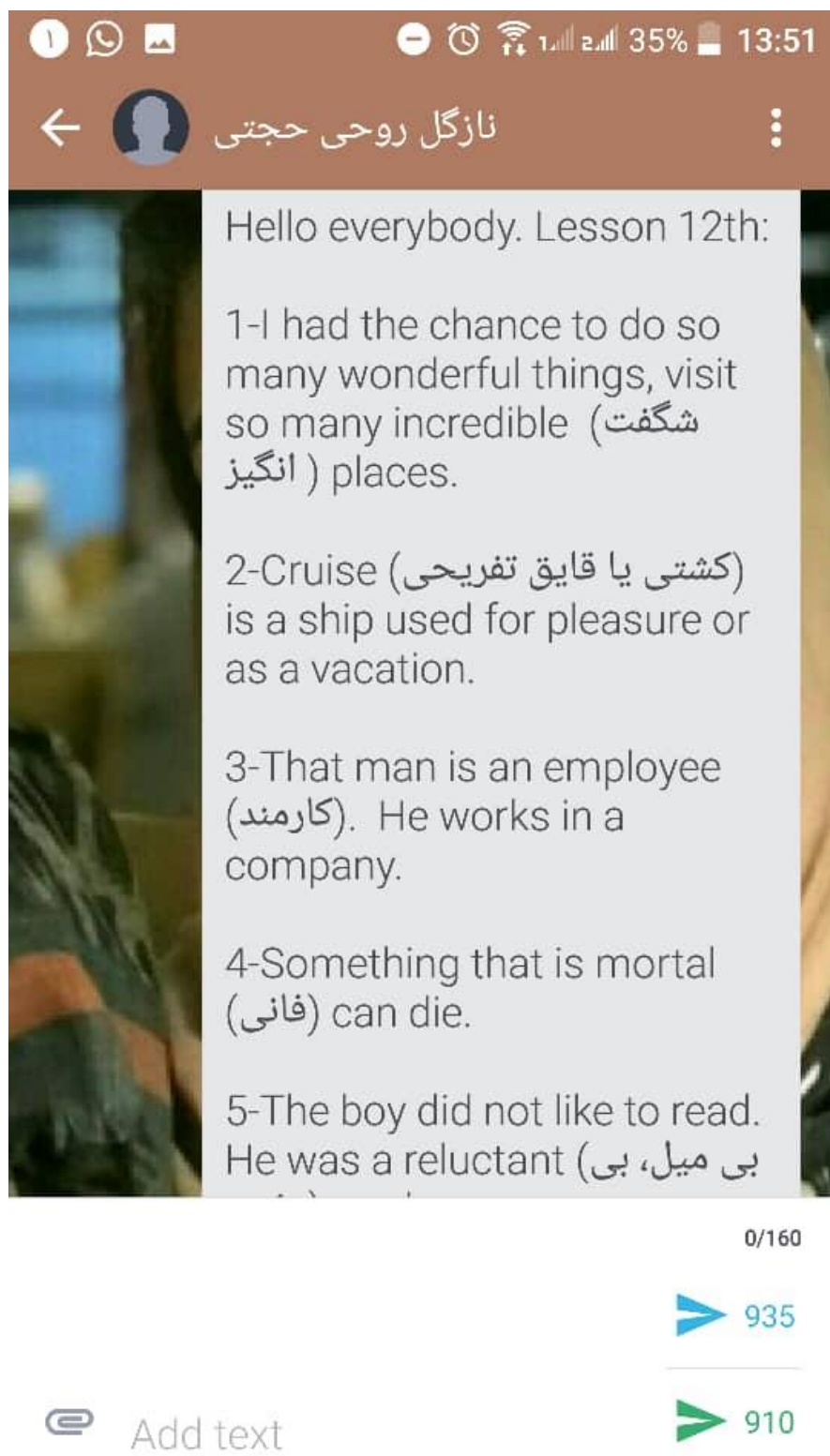
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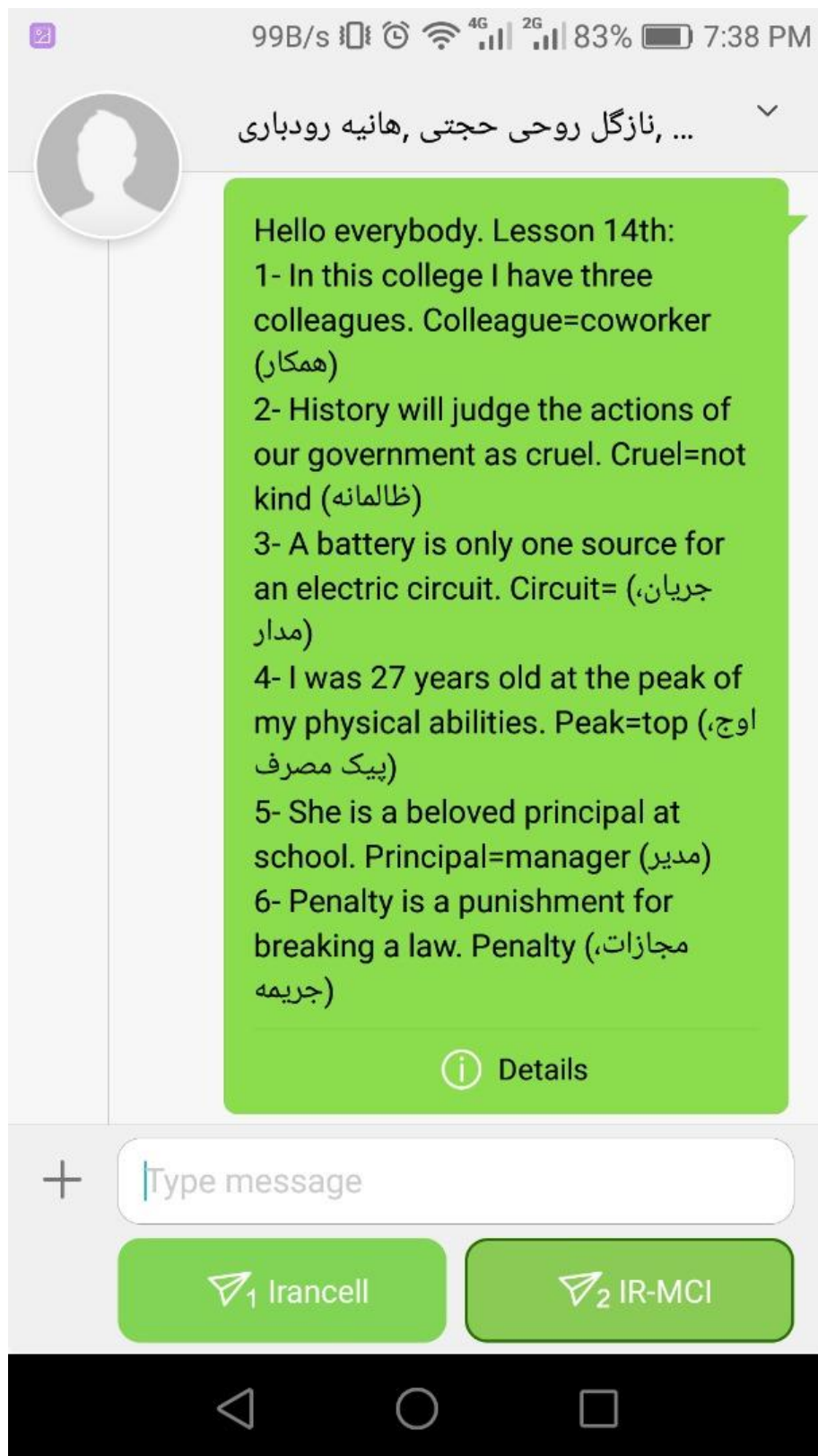
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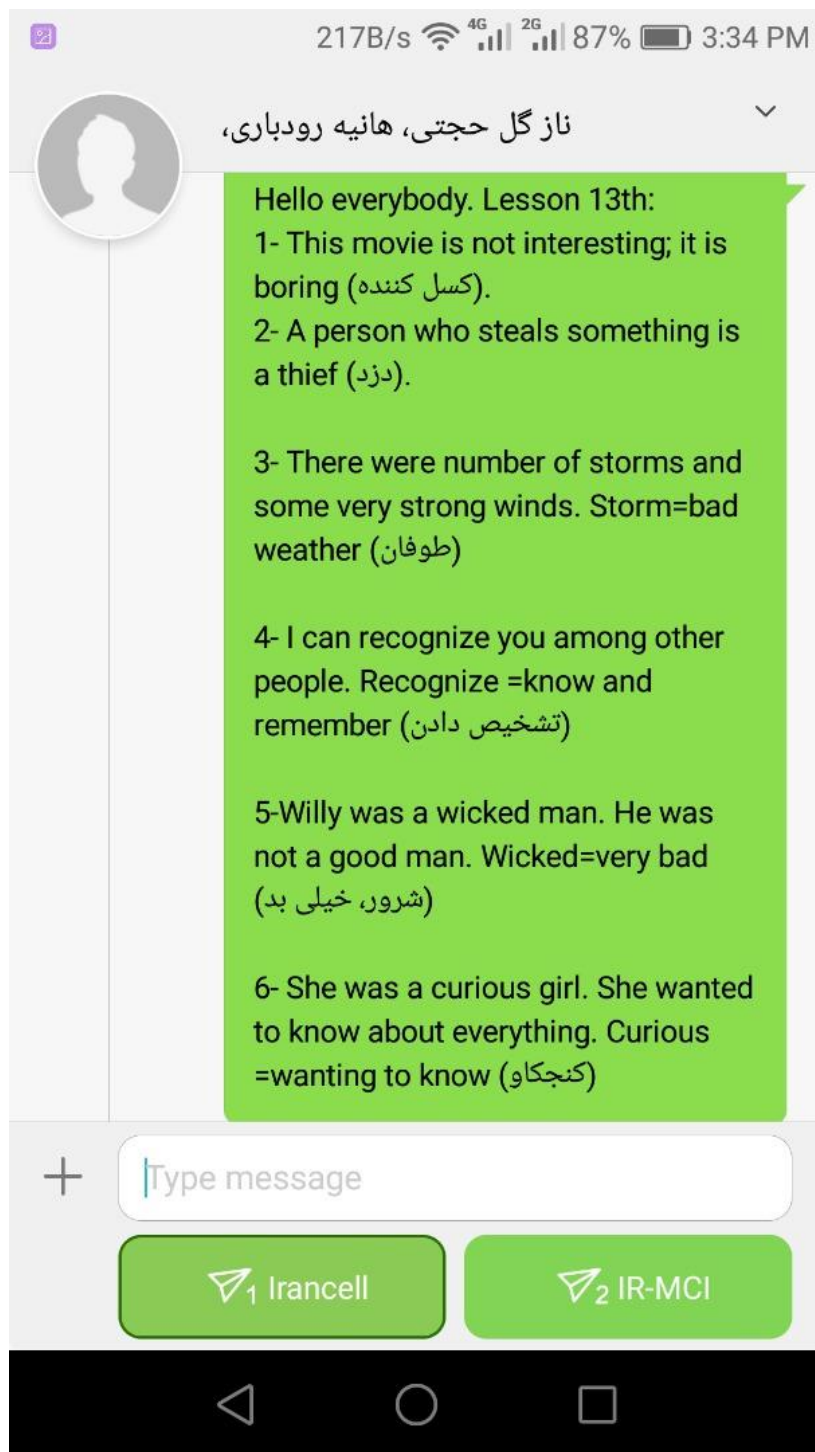
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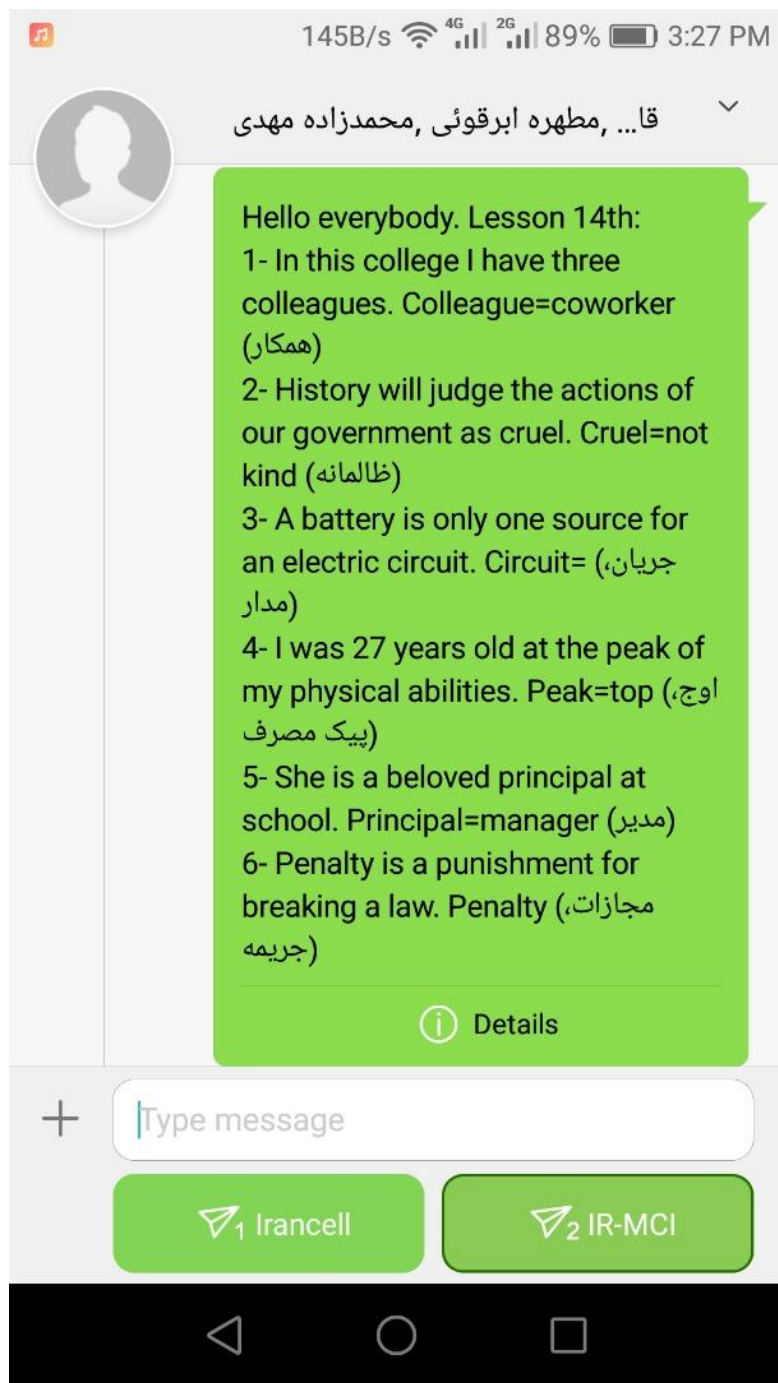


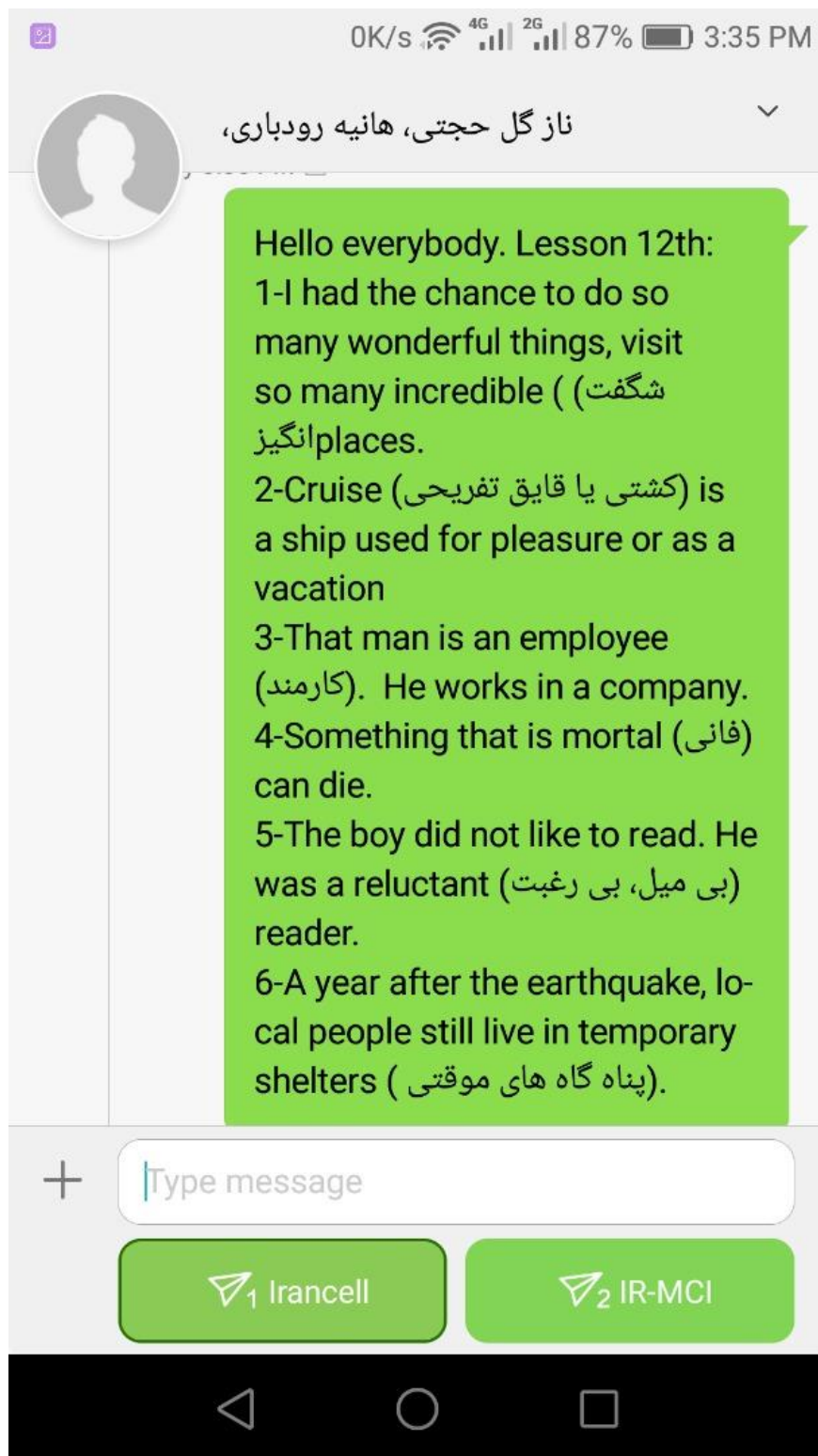












Appendix D:

Questionnaire to Investigate the Learner Autonomy of the Subjects (Original Questionnaire)

Direction: In order to investigate the Learner autonomy, will you please circle the one closest answer to the following questions according to your true cases. Thank you very much for your help and patience!

(A. never B. rarely C. sometimes D. often E. always)

Part I:

Questionnaire Statements	A	B	C	D	E
1. I think I have the ability to learn English well.					
2. I make good use of my free time in English study.					
3. I preview before the class.					
4. I find I can finish my task in time					
5. I keep a record of my study, such as keeping a diary, writing review etc.					
6. I make self-exam with the exam papers chosen by myself.					
7. I reward myself such as going shopping, playing etc. when I progress.					
8. I attend out-class activities to practice and learn the language.					
9. During the class, I try to catch chances to take part in activities such as pair/group discussion, role-play, etc.					
10. I know my strengths and weaknesses in my English study.					
11. I choose books, exercises which suit me, neither too difficult nor too easy					

Part II

12. I study English here due to:

- A. my parents' demand
- B. curiosity
- C. getting a good job, help to my major
- D. interest of English culture, such as film, sports, music, etc.
- E. 3 and 4

13. I think the learner-teacher relationship is that of:

- A. receiver and giver
- B. raw material and maker
- C. customer and shopkeeper
- D. children and partners
- E. explorer and director

14. I think my success or failure in English study is mainly due to:

- A. luck or fate
- B. English studying environment
- C. studying facilities(aids)
- D. teachers
- E. myself

15. Whether students should design the teaching plan together with teachers or not, my opinion is:

- A. strongly agree
- B. agree
- C. neutral
- D. oppose
- E. strongly oppose

16. When the teacher asks questions for us to answer, I would mostly like to:

- A. wait for others' answers
- B. think and ready to answer
- C. look up books, dictionaries
- D. clarify questions with teachers
- E. join a pair/group discussion

17. When I meet a word I don't know, I mainly:

- A. let it go
- B. ask others
- C. guess the meaning
- D. 2 and 5
- E. look up the dictionary

18. When I make mistakes in study, I'd usually like the following ones to correct them:

- A. let them be
- B. teachers
- C. Classmates
- D. Others
- E. books or dictionaries

19. When I am asked to use technologies that I haven't used before(e. g. internet discussion),

A. I usually try to learn new skills

B. I learn them following others

C. I feel worried, but anyway

D. I put it off or try to avoid it

E. I resist using them

20. I think the following way is most useful in my English study:

A. taking notes

B. mechanic memory

C. doing exercises of grammar, translation, words etc.

D. classifying or grouping or comparing

E. group discussion

21. I usually use materials selected:

A. only by teachers

B. mostly by teachers

C. by teachers and by myself

D. mostly by myself

E. only by myself

Scoring

In order to measure the degree of participants' autonomy in learning, the researcher utilized the questionnaire designed by Zhang and Li (2004, p. 23) which includes 21 items. Participants had to answer each item on a five-point Likert scale (1=never, 2=seldom, 3=occasionally, 4=often, 5=always). The questionnaire has proved to have high content validity and high reliability. The questions were divided by O'Malley and Chamot (1990), Wenden (1998, p. 34-35), and Oxford (1990, p. 17). The standard time allocated to this test is 40 minutes, but participants answered it in 15 minutes. In order to turn the participants' selected choices into scores, the choices are marked one, two, three, four and five, respectively. The total score turned out to be 105.

Appendix E

Researcher-made questions to elicit EFL learners` perceptions towards MALL

1. Have you had any previous Mobile Assisted Language Learning (MALL) experience in EFL studies?
2. How do you feel about text messaging in English vocabulary learning?
3. Do you think that the usage of text messaging in EFL classes is useful?
4. What is your idea about the future use of text messaging for English learning?
5. In your ideas, do you think classes that are using MALL are more enjoyable than those without?
6. Do you think classes that use MALL are more productive than those without?
7. Is there any problem with using text messaging in EFL classes?

Appendix F

Word Associate Test (WAT)

Word Associates Test - 40 items - choose four per set (both boxes)

1. beautiful

<input type="checkbox"/> enjoyable	<input type="checkbox"/> expensive	<input type="checkbox"/> free	<input type="checkbox"/> loud	<input type="checkbox"/> education	<input type="checkbox"/> face	<input type="checkbox"/> music	<input type="checkbox"/> weather
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2. bright

<input type="checkbox"/> clever	<input type="checkbox"/> famous	<input type="checkbox"/> happy	<input type="checkbox"/> shining	<input type="checkbox"/> colour	<input type="checkbox"/> hand	<input type="checkbox"/> poem	<input type="checkbox"/> taste
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3. calm

<input type="checkbox"/> open	<input type="checkbox"/> quiet	<input type="checkbox"/> smooth	<input type="checkbox"/> tired	<input type="checkbox"/> cloth	<input type="checkbox"/> day	<input type="checkbox"/> light	<input type="checkbox"/> person
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4. natural

<input type="checkbox"/> expected	<input type="checkbox"/> helpful	<input type="checkbox"/> real	<input type="checkbox"/> short	<input type="checkbox"/> foods	<input type="checkbox"/> neighbours	<input type="checkbox"/> parents	<input type="checkbox"/> songs
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5. fresh

<input type="checkbox"/> another	<input type="checkbox"/> cool	<input type="checkbox"/> easy	<input type="checkbox"/> raw	<input type="checkbox"/> cotton	<input type="checkbox"/> heat	<input type="checkbox"/> language	<input type="checkbox"/> water
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6. general

<input type="checkbox"/> closed	<input type="checkbox"/> different	<input type="checkbox"/> usual	<input type="checkbox"/> whole	<input type="checkbox"/> country	<input type="checkbox"/> idea	<input type="checkbox"/> reader	<input type="checkbox"/> street
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7. bare

<input type="checkbox"/> empty	<input type="checkbox"/> heavy	<input type="checkbox"/> uncovered	<input type="checkbox"/> useful	<input type="checkbox"/> cupboard	<input type="checkbox"/> feet	<input type="checkbox"/> school	<input type="checkbox"/> tool
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8. acute

<input type="checkbox"/> hidden	<input type="checkbox"/> often	<input type="checkbox"/> rich	<input type="checkbox"/> sharp	<input type="checkbox"/> angle	<input type="checkbox"/> hearing	<input type="checkbox"/> illness	<input type="checkbox"/> stones
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9. common

<input type="checkbox"/> complete	<input type="checkbox"/> light	<input type="checkbox"/> ordinary	<input type="checkbox"/> shared	<input type="checkbox"/> boundary	<input type="checkbox"/> circle	<input type="checkbox"/> name	<input type="checkbox"/> party
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10. complex

<input type="checkbox"/> angry	<input type="checkbox"/> difficult	<input type="checkbox"/> necessary	<input type="checkbox"/> sudden	<input type="checkbox"/> argument problem	<input type="checkbox"/> passengers	<input type="checkbox"/> patterns	<input type="checkbox"/>
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11. broad

<input type="checkbox"/> full <input type="checkbox"/> moving <input type="checkbox"/> quiet <input type="checkbox"/> wide	<input type="checkbox"/> night <input type="checkbox"/> river <input type="checkbox"/> shoulders <input type="checkbox"/> smile
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12. conscious

<input type="checkbox"/> awake <input type="checkbox"/> healthy <input type="checkbox"/> knowing <input type="checkbox"/> laughing	<input type="checkbox"/> face <input type="checkbox"/> decision <input type="checkbox"/> effort <input type="checkbox"/> student
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13. convenient

<input type="checkbox"/> easy <input type="checkbox"/> fresh <input type="checkbox"/> near <input type="checkbox"/> suitable	<input type="checkbox"/> experience <input type="checkbox"/> sound <input type="checkbox"/> time <input type="checkbox"/> vegetable
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14. dense

<input type="checkbox"/> crowded <input type="checkbox"/> hot <input type="checkbox"/> noisy <input type="checkbox"/> thick	<input type="checkbox"/> forest <input type="checkbox"/> handle <input type="checkbox"/> smoke <input type="checkbox"/> weather
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15. curious

<input type="checkbox"/> helpful <input type="checkbox"/> interested <input type="checkbox"/> missing <input type="checkbox"/> strange	<input type="checkbox"/> accident <input type="checkbox"/> child <input type="checkbox"/> computer <input type="checkbox"/> steel
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16. distinct

<input type="checkbox"/> clear <input type="checkbox"/> famous <input type="checkbox"/> separate <input type="checkbox"/> true	<input type="checkbox"/> advantage <input type="checkbox"/> meanings <input type="checkbox"/> news <input type="checkbox"/> parents
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17. dull

<input type="checkbox"/> cloudy	<input type="checkbox"/> loud	<input type="checkbox"/> nice	<input type="checkbox"/> secret	<input type="checkbox"/> colour	<input type="checkbox"/> knife	<input type="checkbox"/> place	<input type="checkbox"/> rock
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18. direct

<input type="checkbox"/> honest	<input type="checkbox"/> main	<input type="checkbox"/> straight	<input type="checkbox"/> wide	<input type="checkbox"/> fence	<input type="checkbox"/> flight	<input type="checkbox"/> heat	<input type="checkbox"/> river
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19. favorable

<input type="checkbox"/> helpful	<input type="checkbox"/> legal	<input type="checkbox"/> possible	<input type="checkbox"/> positive	<input type="checkbox"/> habit	<input type="checkbox"/> response	<input type="checkbox"/> teacher	<input type="checkbox"/> weather
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20. secure

<input type="checkbox"/> confident	<input type="checkbox"/> enjoyable	<input type="checkbox"/> fixed	<input type="checkbox"/> safe	<input type="checkbox"/> game	<input type="checkbox"/> job	<input type="checkbox"/> meal	<input type="checkbox"/> visitor
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21. tight

<input type="checkbox"/> close	<input type="checkbox"/> rough	<input type="checkbox"/> uncomfortable	<input type="checkbox"/> wet	<input type="checkbox"/> bend	<input type="checkbox"/> pants	<input type="checkbox"/> surface	<input type="checkbox"/> wood
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22. violent

<input type="checkbox"/> expected	<input type="checkbox"/> smelly	<input type="checkbox"/> strong	<input type="checkbox"/> unlucky	<input type="checkbox"/> anger	<input type="checkbox"/> death	<input type="checkbox"/> rubbish	<input type="checkbox"/> storm
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23. chronic

<input type="checkbox"/> continuing unplanned	<input type="checkbox"/> local	<input type="checkbox"/> serious	<input type="checkbox"/>	<input type="checkbox"/> accident shortage	<input type="checkbox"/> examination	<input type="checkbox"/> illness	<input type="checkbox"/>
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24. compact

<input type="checkbox"/> effective	<input type="checkbox"/> small	<input type="checkbox"/> solid	<input type="checkbox"/> useful	<input type="checkbox"/> group	<input type="checkbox"/> kitchen	<input type="checkbox"/> medicine	<input type="checkbox"/> string
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25. crude

<input type="checkbox"/> clever	<input type="checkbox"/> fair	<input type="checkbox"/> rough	<input type="checkbox"/> valuable	<input type="checkbox"/> behaviour	<input type="checkbox"/> drawing	<input type="checkbox"/> oil	<input type="checkbox"/> trade
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26. domestic

<input type="checkbox"/> home	<input type="checkbox"/> national	<input type="checkbox"/> regular	<input type="checkbox"/> smooth	<input type="checkbox"/> animal	<input type="checkbox"/> movement	<input type="checkbox"/> policy	<input type="checkbox"/> speed
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27. profound

<input type="checkbox"/> bright	<input type="checkbox"/> deep	<input type="checkbox"/> exact	<input type="checkbox"/> great	<input type="checkbox"/> effect	<input type="checkbox"/> machine	<input type="checkbox"/> taste	<input type="checkbox"/> thought
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28. fertile

<input type="checkbox"/> dark	<input type="checkbox"/> growing	<input type="checkbox"/> private	<input type="checkbox"/> special	<input type="checkbox"/> business	<input type="checkbox"/> egg	<input type="checkbox"/> mind	<input type="checkbox"/> soil
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29. formal

<input type="checkbox"/> fast <input type="checkbox"/> loud <input type="checkbox"/> organised <input type="checkbox"/> serious	<input type="checkbox"/> bomb <input type="checkbox"/> education <input type="checkbox"/> growth <input type="checkbox"/> statement
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30. independent

<input type="checkbox"/> changed separate <input type="checkbox"/> equal <input type="checkbox"/> important <input type="checkbox"/>	<input type="checkbox"/> child <input type="checkbox"/> country <input type="checkbox"/> ideas <input type="checkbox"/> prices
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31. original

<input type="checkbox"/> careful <input type="checkbox"/> closed <input type="checkbox"/> first <input type="checkbox"/> proud	<input type="checkbox"/> condition <input type="checkbox"/> mind <input type="checkbox"/> plan <input type="checkbox"/> sister
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32. sensitive

<input type="checkbox"/> feeling <input type="checkbox"/> interesting <input type="checkbox"/> sharp <input type="checkbox"/> thick	<input type="checkbox"/> clothes <input type="checkbox"/> instrument <input type="checkbox"/> skin <input type="checkbox"/> topic
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33. professional

<input type="checkbox"/> paid <input type="checkbox"/> public <input type="checkbox"/> regular <input type="checkbox"/> religious	<input type="checkbox"/> advice <input type="checkbox"/> manner <input type="checkbox"/> musician <input type="checkbox"/> transport
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34. critical

<input type="checkbox"/> clear <input type="checkbox"/> dangerous <input type="checkbox"/> important <input type="checkbox"/> rough	<input type="checkbox"/> festival <input type="checkbox"/> illness <input type="checkbox"/> time <input type="checkbox"/> water
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35. **synthetic**

<input type="checkbox"/> artificial <input type="checkbox"/> simple	<input type="checkbox"/> electronic	<input type="checkbox"/> expensive	<input type="checkbox"/>	<input type="checkbox"/> drug	<input type="checkbox"/> meal	<input type="checkbox"/> radio	<input type="checkbox"/> sound
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36. **liberal**

<input type="checkbox"/> free	<input type="checkbox"/> moderate	<input type="checkbox"/> plenty	<input type="checkbox"/> valuable	<input type="checkbox"/> crops	<input type="checkbox"/> furniture	<input type="checkbox"/> parents	<input type="checkbox"/> transport
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37. **dramatic**

<input type="checkbox"/> exciting	<input type="checkbox"/> official	<input type="checkbox"/> surprising	<input type="checkbox"/> worried	<input type="checkbox"/> adventure	<input type="checkbox"/> change	<input type="checkbox"/> patient	<input type="checkbox"/> salary
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38. **conservative**

<input type="checkbox"/> cautious	<input type="checkbox"/> hopeful	<input type="checkbox"/> traditional	<input type="checkbox"/> warm	<input type="checkbox"/> clothes	<input type="checkbox"/> estimate	<input type="checkbox"/> meeting	<input type="checkbox"/> signal
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39. **coherent**

<input type="checkbox"/> clear	<input type="checkbox"/> normal	<input type="checkbox"/> recent	<input type="checkbox"/> together	<input type="checkbox"/> crime	<input type="checkbox"/> health	<input type="checkbox"/> speech	<input type="checkbox"/> theory
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40. **ample**

<input type="checkbox"/> heavy	<input type="checkbox"/> large	<input type="checkbox"/> plentiful	<input type="checkbox"/> windy	<input type="checkbox"/> amount	<input type="checkbox"/> climate	<input type="checkbox"/> feelings	<input type="checkbox"/> time
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Appendix G

The Updated Vocabulary Levels Test (UVLT) (Webb, Sasao, & Ballance, 2017)

This is test that looks at how well you know useful English words. Put a check under the word that goes with each meaning. Here is an example.

	game	island	mouth	movie	song	yard
land with water all around it						
part of your body used for eating and talking						
piece of music						

It should be answered in the following way.

	game	island	mouth	movie	song	yard
land with water all around it		✓				
part of your body used for eating and talking			✓			
piece of music					✓	

1000 Word Level

	choice	computer	garden	photograph	price	week
cost						
picture						
place where things grow outside						

	eye	father	night	van	voice	year
body part that sees						
parent who is a man						
part of the day with no sun						

	center	note	state	tomorrow	uncle	winter
brother of your mother or father						
middle						
short piece of writing						

	box	brother	horse	hour	house	plan
family member						
sixty minutes						
way of doing things						

	animal	bath	crime	grass	law	shoulder
green leaves that cover the ground						
place to wash						
top end of your arm						

	drink	educate	forget	laugh	prepare	suit
get ready						
make a happy sound						
not remember						

	check	fight	return	tell	work	write
do things to get money						
go back again						
make sure						

	bring	can	reply	stare	understand	wish
say or write an answer to somebody						
carry to another place						
look at for a long time						

	alone	bad	cold	green	loud	main
most important						
not good						
not hot						

	awful	definite	exciting	general	mad	sweet
certain						
usual						
very bad						

2000

	coach	customer	feature	pie	vehicle	weed
important part of something						
person who trains members of sports teams						
unwanted plant						

	average	discipline	knowledge	pocket	trap	vegetable
food grown in gardens						
information which a person has						
middle number						

	circle	justice	knife	onion	partner	pension
round shape						
something used to cut food						
using laws fairly						

	cable	section	sheet	site	staff	tank
part						
place						
something to cover a bed						

	apartment	cap	envelope	lawyer	speed	union
cover for letters						
kind of hat						
place to live inside a tall building						

	argue	contribute	quit	seek	vote	wrap
cover tightly and completely						
give to						
look for						

	avoid	contain	murder	search	switch	trade
have something inside						
look for						
try not to do						

	bump	complicate	include	organize	receive	warn
get something						
hit gently						
have as part of something						

	available	constant	electrical	medical	proud	super
feeling good about what you have done						
great						
happening all the time						

	environmental	junior	pure	rotten	smooth	wise
bad						
not rough						
younger in position						

3000

	angle	apology	behavior	bible	celebration	portion
actions						
happy occasion						
statement saying you are sorry						

	anxiety	athlete	counsel	foundation	phrase	wealth
combination of words						
guidance						
large amount of money						

	agriculture	conference	frequency	liquid	regime	volunteer
farming						
government						
person who helps without payment						

	asset	heritage	novel	poverty	prosecution	suburb
having little money						
history						
useful thing						

	audience	crystal	intelligence	outcome	pit	welfare
ability to learn						
deep place						
people who watch and listen						

	consent	enforce	exhibit	retain	specify	target
agree						
say clearly						
show in public						

	accomplish	capture	debate	impose	proceed	prohibit
catch						
go on						
talk about what is correct						

	absorb	decline	exceed	link	nod	persist
continue to happen						
goes beyond the limit						
take in						

	approximate	frequent	graphic	pale	prior	vital
almost exact						
earlier						
happening often						

	consistent	enthusiastic	former	logical	marginal	mutual
not changing						
occurring earlier in time						
shared						

4000

	cave	scenario	sergeant	stitch	vitamin	wax
healthy supplement						
opening in the ground or in the side of a hill						
situation						

	candle	diamond	gulf	salmon	soap	tutor
something used for cleaning						
teacher						
valuable stone						

	agony	kilogram	orchestra	scrap	slot	soccer
group of people who play music						
long, thin opening						
small unwanted piece						

	crust	incidence	ram	senator	venue	verdict
hard outside part						
judgment						
place						

	alley	embassy	hardware	nutrition	threshold	tobacco
government building						
plant that is smoked in cigarettes						
small street between buildings						

	fling	forbid	harvest	shrink	simulate	vibrate
do not allow						
make smaller						
throw						

	activate	disclose	hug	intimidate	plunge	weep
cry						
tell						
turn on						

	diminish	exaggerate	explode	penetrate	transplant	verify
break into pieces violently						
get smaller						
move something to another place						

	adjacent	crude	fond	sane	spherical	swift
beside						
not crazy						
quick						

	abnormal	bulky	credible	greasy	magnificent	optical
believable						
oily						
unusual						

5000

	gown	maid	mustache	paradise	pastry	vinegar
hair on your upper lip						
perfect place						
small baked food						

	asthma	chord	jockey	monk	rectangle	vase
container for cut flowers						
group of musical notes that are played at the same time						
shape with two long and two short sides						

	batch	dentist	hum	lime	pork	scripture
green fruit						
low, constant sound						
meat from pigs						

	amnesty	claw	earthquake	perfume	sanctuary	wizard
liquid that is made to smell nice						
man who has magical powers						
safe place						

	altitude	diversion	hemisphere	pirate	robe	socket
height						
kind of clothing						
person who attacks ships						

	applaud	erase	jog	intrude	notify	wrestle
announce						
enter without permission						
remove						

	bribe	expire	immerse	meditate	persecute	shred
cut or tear into small pieces						
end						
think deeply						

	commemorate	growl	ignite	pierce	renovate	swap
catch fire						
exchange						
go into or through something						

	bald	eternal	imperative	lavish	moist	tranquil
calm and quiet						
having no hair						
slightly wet						

	diesel	incidental	mandatory	prudent	superficial	tame
not dangerous						
required						
using good judgment						

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THE IMPLEMENTATION OF EDUCATIONAL TEXTING AS AN INSTRUCTIONAL FACILITATOR

IN THE IRANIAN EFL CONTEXT

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