A Blended Mobile Based Language Learning Environment and its Effectiveness in Developing EFL Communication Skills among Low Achievers in Preparatory Schools and their Attitudes towards it

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Abstract

Communication skills in English language is the most important outcomes of teaching English as a foreign language (EFL). Yet, low achievers of EFL find difficulties to communicate using EFL that are often accompanied by negative attitudes towards the learning environment in use. This research aimed to investigate the effectiveness of a blended (mobile based and face-to-face) language learning environment to improve EFL communication skills and attitudes towards mobile language learning among low achievers in the preparatory stage in Egypt. A quasi-experimental design with pre-post independent two samples was conducted to investigate the research variables. Purposive sample of (10) students was selected from low achievers of EFL communication skills and were randomly assigned to two groups: the control group which were taught the target content face-to-face, and the experimental group which used blended mobile based language learning. Two instruments were developed and used to collect data before and after the treatment intervention: (1) an achievement test of EFL communication skills, and (2) an attitude scale to measure the low achievers' attitudes towards mobile based language learning. Nonparametric statistics revealed significant effectiveness of BMBLL in developing low achievers' skills of reading, listening, speaking in the favor of experimental group, whereas the effectiveness of BMBLL was not significant in developing EFL writing skills. The results also showed significant effectiveness of BMBLL in developing low achievers' attitudes towards mobile based language learning.

Keywords: *EFL Communication skills, Blended Mobile Language Learning, Attitudes, Low achievers*

بيئة للتعلم المدمج قائمة علي الهاتف النقال وفاعليتها في تنمية مهارات التواصل باللغة الإنجليزية لدي منخفضي التحصيل في المدارس الإعدادية واتجاهاتهم نحوها

المستخلص

تمثل مهارات التواصل باللغة الانجليزية أهم مخرجات التعلم المستهدفة من تعليم اللغة الإنجليزية كلغة أجنبية في كافة المراحل التعليمية، ويواجه المتعلمون منخفضي التحصيل صعوبات في تعلم تلك المهارات في بيئات التعلم الحقيقية يصاحبها اتجاهات سلبية نحو اللغة وبيئات التعلم. ويهدف البحث الحالي إلى الكشف عن فاعلية بيئة تعليمية تعتمد علي الدمج بين التعلم المحمول والتعلم وجها لوجه لتحسين مهارات التواصل باللغة الانجليزية لدي منخفضي التحصيل واتجاهاتهم نحو بيئة التعلم. اعتمد البحث الحالي على التصميم شبه التجريبي والتطبيقين القبلي البعدي لمجموعتين مستقلتين. وقد ضمت عينة البحث عدد (١٠) من منخفضي التحصيل في مهارات التواصل باللغة الانجليزية تم توزيعهما عشوائيا علي مجموعتين إحداهما ضابطة تدرس وجها لوجه في بيئة التعلم الحقيقية والأخرى تجريبية وتدرس في بيئة للدمج قائمة علي التعلم المحمول. وقد اعتمد البحث علي تطوير واستخدام أداتين لجمع البيانات: (١) اختبار تحصيلي لقياس أداء أفراد العينة لمهارات التواصل باللغة الانجليزية، وقد تضمن الاختيار أربعة اختبارات فرعية: الأول لقياس مهارات القراءة والثاني لقياس مهارات الاستماع والثالث لقياس مهارات التحدث والرابع لقياس مهارات الكتابة، (٢) مقياس لاتجاهات المتعلمين نحو بيئة الدمج. وأظهرت نتائج التحليل الإحصائي اللابارميترية وجود فروق ذات دلالة احصائية في متوسط الرتب لأداء المتعلمين في التطبيق البعدي لاختبارات مهارات القراءة، الاستماع، التحدث لصالح المجموعة التجريبية، في حين كشفت النتائج أن الفرق في متوسط رتب أداء المجموعة التجريبية في التطبيق البعدي لاختبار مهارات الكتابة غير دال إحصائيا. كما أظهرت النتائج وجود فرق دال إحصائيا في متوسط رتب أداء المجموعة التجريبية في التطبيق البعدي لمقياس الاتجاهات نحو بيئة الدمج القائمة علي التعلم المحمول في تعلم اللغة الإنجليزية كلغة أجنبية. وتم مناقشة النتائج وتقديم توصيات ببحوث مستقبلية.

الكلمات المفتاحية: *مهارات التواصل باللغة الانجليزية، تعلم اللغة المعتمد علي الأجهزة المحمولة، الاتجاهات، منخفضي التحصيل.*

1. Introduction

Mobile smart devices have become ubiquitous in recent times, playing a pivotal role in our day to day lives. Children being born into such a technologically dense environment easily adapt to using these devices, with recent studies showing that the majority of infants will have started using a mobile device by their first birthday (Wang et al., 2020). Like their senior generations that were surfing the world wide web from a young age, the current generation of school learners are "digital natives" (Krotov, 2015); interacting with smart devices is natural to them. It is no surprise, then, that children often display a preference for learning from smart devices (Wojcik et al., 2021). Mobile devices are affordable because of their portability, they are available practically anywhere and at any time. The use of mobile devices has been demonstrated to improve learning outcomes since they increase educational access and foster lifelong learning (Elaish et al., 2017).

Mobile learning (M-learning) is becoming more and more of a global trend, especially among English language learners (Elaish et al., 2017). M-learning is defined as the use of wireless and mobile communication technology to give students interactive access to learning resources, regardless of their location or available time (Chen et al., 2022).

Students in Egyptian schools, like in all Arabic countries, study English as a Foreign Language (EFL) to acquire the four communication skills in English language: reading, listening, wiring, and speaking. The student book of the 1st year of Egyptian preparatory schools includes six modules: *my family and me*, *it's my favorite subject*, *different people*, *we're using technology*, *holidays*, and *let's eat*. The main objective of the course is to improve the four EFL communication skills. The content of each module includes integrated elements that work together to improve the target skills. The content of this book covers essential skills such as reading a specific topic, analyzing it, understanding its details, and answering related questions. For writing skills, students are required to write sentences related to a particular topic and organize them into paragraphs. Speaking skills are developed by using the vocabulary learned in various study topics to talk about their families, ask about their schools and schedules, talk about their likes and dislikes, and describe people. For listening skills, students are

required to listen to recorded passages to comprehend a specific topic and respond to related questions based on what has been heard (Chilton et al., 2023).

Students are taught these skills face-to-face in traditional learning environments. Since Arabic is the native language in Egypt, a traditional classroom setting may not be the best option for learning EFL, either inside or outside the classroom, as there are not enough opportunities for pupils to practice their English or be exposed to a variety of engaging activities with a broad vocabulary. However, there is not enough time to monitor students' linguistic progress, there are not enough chances for student-teacher and student-student interactions, and there are not enough chances that encourage low achievers through repetition, correction, and feedback (Alsalihi, 2020). Therefore, the traditional methods of teaching are seen as a major obstacle to the study of EFL for most of the students (Ahmad, 2016), which results in deficiency in the acquisition of EFL communication skills, and negative attitudes towards both EFL and the methods of instruction employed. These challenges are seriously apparent among low achievers to the degree that prevent their progress (Marikyan & Papagiannidis, 2023).

The term "low achievers" refers to those students who are unable to achieve the required grades in a particular subject (Chakrabarty & Saha, 2014). The main characteristics of low achievers include poor academic performance, inability to manage their studies, a lack of desire and self-control, a low degree of self-efficacy and self-esteem, and poor social relationships (Nayan & Krishnasamy, 2019). Low achievers find EFL a difficult subject to learn due to inadequate opportunities for utilizing English beyond the classroom, limited exposure to the desired language, a restricted vocabulary range, and a lack of motivation for English learning. These factors collectively contribute to fostering unfavorable attitudes towards EFL (Normazidah et al., 2012).

Prior research indicated the effectiveness of M-learning in developing the proficiency of learners of EFL across multiple domains. Regarding vocabulary, Govindasamy et al. (2019) observed a marked improvement in learning compared to conventional printed dictionaries, noting the unique advantages that mobile smart devices have over printed materials: advanced search that includes etymology, example images, contextual examples, pronunciation, etc. Additionally, there is mounting

evidence demonstrating the effectiveness of M-learning in developing speaking skills, with research results showing higher levels of confidence in speaking due to the absence of pressures such as fear of feedback or anxiety in communication (Shamsi et al., 2019; Chaya & Inpin, 2020), in addition to higher proficiency in listening (Laghari et al.,2017).

Similarly, M-learning has been shown to have a positive effect on vocabulary learning as it enhances students' vocabulary acquisition, vocabulary retention, and fluency of expression (Lin & Lin, 2019; Polakova & Klimova, 2022). Likewise, it has been noted that M-learning has a sizable impact on academic performance, conversational abilities, and language acquisition (e.g., Hsu, Hwang & Chang, 2013; Elfeky & Masadeh, 2016; Talan, 2019; and Gregson & Jordaan, 2009). Moreover, Wang et al. (2020)explained that the development of communication skills is aided largely by the positive attitude students have towards M-learning compared to more conventional methods and their readiness to use M-learning long-term.

However, limiting instruction to mobile devices may distract children in early childhood and middle school classes as the students may be unable to organize their schedules for independent reading and self-learning of the course materials, which may have a negative impact on their learning engagement and outcomes (Elfeky & Masadeh, 2016). Therefore, Blended Mobile Based Language Learning (BMBLL), in which various mobile applications are integrated into the English language instruction in a traditional classroom setting, may offer students the necessary supervision and keep them fully involved in activities that improve EFL communication skills.

Results from many studies, including those by Avci and Adiguzel (2017), Elaish et al. (2017), Önal et al. (2022), Ono et al. (2015), Osifo (2019), Ustun (2019), and Sato et al. (2015), have demonstrated the effectiveness of BMBLL with normal students in different studying levels. However little research has been done to explore the effectiveness of BMBLL to improve EFL communication skills among low achievers of the elementary and preparatory stages (Polakova & Klimova, 2022). The results of Ikhsan, & Sunaryo, (2020), Marikyan, & Papagiannidis, (2023), and Tsai, (2014). highlighted the relationship between users' attitudes towards the technology in use and their experience of using it.

1.2 . Background of the research problem

An exploratory study was conducted to determine EFL communication skills among the population of first-grade students, in an Egyptian preparatory school, Khaled Ebn-Elwaleed preparatory school in New Damietta City, [N=140]. Through this study an Achievement Test of EFL Communication Skills (ATEFLCS) was administered to the population during the first week of November in the academic year 2022–2023. Students' attitudes towards the traditional learning environment and methods of teaching EFL were also examined. The results revealed that 30% of the population (42 students) were considered as low achievers of EFL, as they do not reach the accepted level at any one of the four categories of EFL communication skill test: reading, writing, listening, or speaking. Similarly, they exhibit negative attitudes towards traditional methods of learning EFL.

1.3 Statement of the problem and research questions

Based on the results of the exploratory study, it could be stated that "a high proportion of the first-grade students at the preparatory school were considered as Low achievers in EFL communication skills as they revealed limited vocabulary, and lack of motivation to learn EFL and to use the language to express themselves. This is accompanied by the emergence of negative attitudes towards the environment of language learning".

Therefore, the current research sought to answer to the following questions:

RQ١. What is the effectiveness of BMBLL in developing EFL communication skills among the low achievers of the 1st grade of the preparatory stage in Egypt?

RQ٢. What is the effectiveness of BMBLL in improving the attitudes of the low achievers of the 1st grade of the preparatory stage in Egypt towards BMBLL?

1.4. Research objectives

The main objectives of this research were to:

- Develop a blended mobile based language learning environment (BMBLL),
- Explore the effectiveness of the BMBLL in developing EFL communication skills among low achievers in preparatory schools in Egypt,

-   Explore the effectiveness of the BMBLL in developing low achievers' attitudes towards it.

1.5. Research hypotheses

To achieve these purposes, the following hypotheses were developed based on evidence from prior research (Baleghizadeh, & Oladrostam, 2010; Hewa, 2017; Ikhsan, & Sunaryo, 2020; Marikyan, & Papagiannidis, 2023; Novembli, & Azizah, 2019; Samah, 2017; Tsai, 2014) and tested in the study:

H. 1: BMBLL is effective in developing EFL communication skills among low achievers of the 1st grade of the preparatory stage in Egypt.

To facilitate analysis, the above hypothesis was divided into sub-hypotheses as follows:

H.1a: *There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the reading section of the EFL achievement test in the favor of the experimental group.*

H.1b: *There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the listening section of the EFL achievement test in the favor of the experimental group.*

H.1c: *There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the writing section of the EFL achievement test in the favor of the experimental group.*

H.1d: *There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the speaking section of the EFL achievement test in the favor of the experimental group.*

H. 2: There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the attitude scale in the favor of the experimental group.

2. Theoretical framework

2.1. M-learning and BMBL

The prevalence of mobile phones and the expansion of other portable and wireless devices have altered the landscape of technology-supported learning. Utilizing these technologies appears to be well-aligned with strategic educational objectives including enhancing students' achievement and retention and addressing learners' diverse learning requirements (Kukulska-Hulme, 2009).

There is no universally accepted definition of M-learning (Kukulska-Hulme et al., 2009). However, it is possible to define M-learning as the use of widely available portable technology and wireless mobile phone networks to assist, facilitate, improve, and broaden the scope of teaching and learning. Portable technologies include cell phones, smartphones, PDAs, MP3/MP4 players, iPods, portable gaming consoles, Ultramobile PCs (UMPCs), and tiny notebooks or netbooks (Hashemia et al., 2011). M-learning may take place at any time and in any place, including classrooms, homes, and/or public spaces.

M-learning modifies the traditional learning process as the use of mobile devices alters how learning materials are presented and how they are accessed, and it also influences the choice and development of new means of imparting knowledge. M-learning is distinguished by its time management properties, sufficiency, and individualization, as well as by its interactivity and use of multimedia (Mohammadi et al., 2020).

An M-learning setting extends beyond a conventional e-learning environment where course content is delivered exclusively through mobile devices. It is advisable for M-learning materials to be distributed in small segments, commonly known as "nuggets" or "bitesized" (Demir & Akpinar, 2018). It includes several components to create mobile interactive and interesting learning experience that enriches the teaching methods, develops students' skills, increases participation, and boosts academic performance (Al-Hunaiyyan et al.,2017).

The benefits of utilizing M-learning include: (1) rendering more convenient and attractive learning for students overall, especially for younger individuals, (2) facilitating the distribution of instructional materials to students, (3) providing the flexibility to engage in learning

using mobile devices anytime and anywhere (Alshehri, 2017, p. 718), (4) supporting students in their learning journey and actively involving them in their subjects, (5) enhancing individualized learning and promoting opportunities for discussion (Yousafzai et al., 2016), (6) catering to the needs of students with special needs (Cumming, 2013; Fernández-López et al., 2013). Conversely, downsides of M-learning such as limited screen size on mobile devices, constrained storage capacity, unpredictable battery performance leading to potential data loss, and usability challenges need to be considered (Sattarov & Khaitova, 2019).

Analysis of prior research reveals two primary categories of m-learning environments. The first is known as mobile-assisted learning (MAL), while the second is known as Blended Mobile-Based Learning (BMBL). The term "M-assisted learning" describes a learning environment where learning takes place using mobile devices such as tablets and smartphones (Li, 2022, 606). The term BMBL refers to a combination of using mobile device applications with traditional classroom activities in a specific design.

2.2. Mobile–Assisted Language Learning and Blended Mobile-Based Language Learning

In the context of language education, the application of Mobile-Assisted Learning (MAL) or Blended Mobile-Based Learning (BMBL) results in the categorization as Mobile-Assisted Language Learning (MALL) or Blended Mobile-Based Language Learning (BMBLL).

Several studies have confirmed the effectiveness of MALL in enhancing the four main language skills for university students (i.e., Elfeky, and Masadeh, 2016; Fageeh, 2013; Wang, 2016, Linwih and Winardi, 2020). Furthermore, MALL's positive impact has extended to high school and secondary school settings, as indicated by Lu (2008) and Polakova and Klimova (2022). In early childhood and prep classes, however, confining instruction to mobile devices may distract pupils since they may not be able to manage their schedules, read independently, and understand the course materials on their own. As a result, they may face difficulties when trying to engage in the learning process (Elfeky & Masadeh, 2016). Thus, BMBLL has evolved to blend the benefits of both M-learning and conventional learning in order to support students' EFL skills.

BMBLL would provide learners with the advantages of both mobile devices' capabilities, and real context that may enhance their EFL

communication skills. Mobile devices can provide students with new vocabulary supported by images, engaging stories, and/or opportunities for repetition, recording and autonomous teacher feedback. Students can also access a wide range of educational resources, including electronic dictionaries, educational websites, and apps for learning pronunciation and improving vocabulary. Students can also have opportunities for individual practice and training in various skills, such as reading, listening, writing, and speaking. By using dedicated apps for English language learning, students can improve their ability to read and analyze specific topics, understand details, and answer questions related to these topics. Further, they can develop writing skills by composing sentences related to a specific topic and assembling them into paragraphs. Speaking apps allow students to practice oral communication and express themselves on various topics using the vocabulary they have acquired. Moreover, the availability of audio and video materials through learning apps can improve students' engagement as they spend long time reading and learning (Chen & Hwang, 2022). Within real context, students would have opportunities to receive guidance to organize their schedules for independent reading based on M-learning activities and comprehension of the course materials, use, and practice the new acquired vocabs in real situations, get engaged in real communication situations to use and practice new acquired vocabs, receive direct and immediate feedback, conduct in-class surveys on views and opinions in respect to their new acquired EFL skills (Vijay & Almashikhi, 2019, p. 1362).

2.3. Low achievers of EFL communication skills and BMBLL

Low achievement is a prevalent occurrence across various realms of education, yet it is particularly notable in the context of EFL learning. The term "low achievers" describes those who fall short of achieving the anticipated grades according to conventional assessment methods within a specific subject (Chakrabarty & Saha, 2014), although they have a normal IQ and have no physiological impairment (Tang, 2016). According to Cheng (2014), low achievers are described as students who exhibit poor academic performance, encounter challenges in organizing their studies, display limited motivation and self-discipline, possess a low sense of efficacy, and hold the belief that they are unable to overcome their learning obstacles. Low achievers are difficult to teach because they struggle with developing

both productive and receptive abilities in second language learning. They are not able to identify phrases from listening, recall information, use sentences with complex structures, ask someone for help, and to choose the best answer for a question (Samperio, 2019). Low achievers lack the desire to learn, self-control, self-esteem, and social relationships (Nayan & Krishnasamy, 2019). Tang (2016) attributes their lower achievement level to ineffective English instruction.

The most notable characteristic of low achievers in EFL is their inability to manage speaking and/or writing skills, leading to their reluctance to communicate via written or oral forms (Chakrabarty & Saha, 2014). They have negative attitudes towards the English learning environment, the process of learning English, and the methods of teaching EFL. They usually use incorrect ways to learn language and tend to be passive in their classes (Normazidah et al., 2012), and they need more time to manage writing problems (Setyowati et al., 2020). These problems may be attributed to internal factors such as: individual differences, motivation, and learning styles, or to external factors such as poor learning environment which lacks teacher experience or assistance, real situations to practice EFL communication skills, and suitable assistance and educational circumstances conducive to improving the acquisition of EFL skills (Alrabai, 2016). According to Setyowati et al. (2020), low achievers identified seven problems when using online learning in EFL writing namely: low motivation, inability to generate ideas, shortage of vocabulary, spelling problems, poor understanding of learning materials, and interruptions through learning.

However, it was found that supplementing BMBLL with a variety of learning resources, opportunities for language practice, guidance for low achievers to create their own examples, authentic English conversions, dictionaries to look up new vocabulary, and additional online courses could support low achievers in improving their EFL communication skills (Alshehri, 2017; Samperio, 2019).

2.4. The design of BMBLL environment based on Salmon's model

Designing an adequate M-learning environment requires an understanding of the capabilities and limitations of this technology, as well as students' needs and the criteria that take advantage of the benefits of M-learning and meet the needs of the students (Power, 2019, p. 5). To achieve

the intended outcomes of M-learning, it is necessary to choose activities that are tailored to specific audiences. Using Salmon's model (2004, p. 29) to guide the instructional design of BMBLL was deemed appropriate because it strikes a balance between teachers' roles in language learning classrooms and students' activities. Moreover, it caters for the specific needs of low achievers in developing EFL communication skills. Additionally, this model is characterized by its reusability, adaptability, availability, and affordability (Armellini & Aiyegbayo, 2010).

Salmon (2011, pp. 31-43) outlined her model, which serves as a framework for designing learning activities, in the five stages listed below:

Stage (1) *Access and motivation*: The instructor or the moderator welcomes the learners and plans situational activities for motivating them to use available devices and access learning resources anytime and everywhere.

Stage (2) *Online socialization*: Learners are asked to constitute their learning community including teachers, peers, and family members. The moderator guides learners' interaction with each other around learning activities and objectives.

Stage (3) *Information exchange*: Learning elements are tailored to involve learners in information exchange with moderators and peers to achieve cooperative tasks and solve learning problems for increasing confidence and benefit from their peers in the learning groups.

Stage (4) *Knowledge construction*: The moderator creates learner's community for knowledge construction, each learner is provided a role to be an interactive member in group discussions to conduct his/her part of knowledge construction.

Stage (5): *Development*: As the learners complete the necessary activities, their knowledge grows, and they gain the confidence to use their new knowledge and demonstrate their accomplishment in assessment settings.

Salmon's framework (Salmon, 2004, p. 29) could be used to create mobile-based activities for BMBLL that encourage low achievers to access learning resources, participate in social situations to develop their EFL communication skills, and remain actively engaged in learning activities. For the purpose of the current research, the stages of Salmons' model were

applied to design the environment of BMBLL which was investigated within the research experiment.

2.5. Attitudes and BMBLL

According to Gonulal (2019), "attitudes" is defined as a person's emotional and evaluative response to objects, situations, or people which can influence his/her feelings, beliefs, and actions regarding the subject of attitude. The relationship between an individual's attitudes and his/her behavioral intentions is highlighted by Ikhsan and Sunaryo (2020), Marikyan and Papagiannidis (20230), and Tsai (2014). Therefore, the attitudes of participants in a training program are expected to shape their intentions to engage in this program in the future (Albarracin et al., 2005, p. 13).

In the context of using mobile technology to assist language learning, students' attitudes have attracted the interest of several studies that were focused on normal students at university level (i.e., Dashtestani, 2016; Viberg and Grönlund, 2013; Briz-Ponce et al., 2017; Klimova, 2021; Aliakbari and Mardani, 2022). Since BMBLL is a new approach, particularly concerning EFL low achievers in the preparatory phase in Egypt, its influence on their attitudes requires further investigation.

Understanding attitude is a complex undertaking; it is essential to first identify its components before incorporating them into any proposed assessment. According to Mantle-Bromley (1995), attitudes involve three components: (1) the affective component which reflects a persons' degree of assessment for an object or people, (2) the cognitive component which refers to the persons' knowledge or beliefs about a particular object or people, whereas (3) the behavioral component which describes the person's actions or intentions towards the object or people. These three components were involved in the instrument AtSMLL that was developed to measure low achievers' attitudes.

3. Methodology

3.1. Research sample

Forty-two students from the first grade of Khaled Ebn-Elwaleed's preparatory school in New Damietta City were identified as low achievers in EFL communication skills since they did not attain the mean score in any of the four areas of EFL communication skills. Fifteen of them had mobile

devices and internet connection, however, only ten students, from two separate classes, got the acceptance of their families to use their mobile devices in learning EFL and participate in the experiment of the research voluntarily. These students were randomly assigned into two equal groups: experimental group and control group, the experimental group studied the content based on BMBLL whereas the control group studied the same content via conventional methods in their classroom. Both groups were subjected to the experiment for five weeks.

3.2. BMBLL Design

To achieve the purpose of the current study, a BMBLL system, which represents the independent variable, was developed. The content of BMBLL and related activities were driven by the learning objectives of the module "*Family & Me*". It is one of the six modules in the EFL students' book, which is used for teaching EFL to first graders in Egyptian preparatory schools. The main objectives of this module are to impart the target students' basics of communication skills in EFL: reading, writing, listening, and speaking.

The BMBLL was designed based on Salmon's model of learning designed to blend mobile-based activities with classroom-based activities in a sequence of the five stages of the model (appendix 1). This design was developed, uploaded, and made online available to the experimental group through the URL:https://dr-taherfarahat.com/family-me/

The learning activities were tailored to enhance the practice of EFL communication skills among low achievers, facilitate knowledge construction, promote interaction and collaboration, provide feedback, and offer reinforcement. These combined aspects are essential for advancing their proficiency in EFL communication skills. However, designing suitable M-learning applications requires an understanding of the students' needs and learning requirements (Power, 2019, p. 4). Vincent-Layton, (2021) suggested a template for mobile lessons that included some design guidelines that support students' motivation. These include the task name, learning goals and objectives, learning resources, instructions, assessment, a designated method to submit assignment for evaluation, a system for evaluating students' assignments, assignment deadlines, expected feedback,

in addition to mobile technology considerations such as ease of use. These guidelines were considered in the design of the BMBLL.

3.3. Research instruments

Two instruments were developed to measure dependent variables of the current research: An Achievement test of EFL communication skills (AEFLCS), and an Attitude scale (AtSMBLL).

3.3.1. Achievement test of EFL communication skills

To measure the first dependent variable of the current research, an Achievement test of EFL communication skills (AEFLCS) was developed. The main objective of the test was to assess students' EFL communication skills. Therefore, the test contained four sub tests: reading, writing, listening, and speaking.

The reading test aimed to assess students' skills in reading comprehension. It involved a reading passage followed by five multiple choice questions with two correct answers for each. 10 points were assigned to this test, and the total score ranged from (zero-10).

The listening test aimed to assess students' listening comprehension of a given audio record and then answer the questions that were provided after hearing the audio. The audio was followed by five multiple choice questions with two correct answers for each. 10 points were assigned to this test, and the total score for each student ranges between zero-10.

The writing test aimed to assess students' skills in the use of vocabulary, punctuation, grammar, production, and coherence of ideas when writing a paragraph about a given subject. The assessor used a writing skill rating scale to evaluate students' writing according to five criteria including using vocabulary, producing ideas, coherence of ideas, utilizing punctuation, and right application of grammar rules. The student's score depends on his/her application of each criterion ranging between zero -2 points.

The speaking test aimed to assess students' speech through which they respond to five given questions about themselves, their families, their social relationships, their hobbies, and their aspirations. The assessor rated students' responses using the conversation skill rating scale, which involved three levels: the assessor was required to give a mark to each response starting with two points for a superb and thoughtful response, one point for a slow but adequate response, and zero points for an unsatisfactory

response. Therefore, each participant's total mark could range from zero up to 10 points.

Thus, the total score on the AEFLCS was 40 points. The validity of the test was approved based on the recommendations of EFL experts. Prior to implementation, the test was applied to a pilot sample of 5 students from the 1st grade in Khalid Ebn-Elwalid preparatory school who studied the target content of the research experiment to check for the validity and reliability of the test and to identify the required time to finalize the test. Based on the results of the pilot application, the specified time to finish the test was 30 minutes. The Cronbach's Alpha value was 0.70, which means that the test had a suitable reliability level.

3.3.2. Attitude Scale

To measure the second dependent variable of the current research, an attitude scale (AtSMBLL) was developed for the aim of this study to assess students' attitudes towards the use of BMBLL based on instruments that were used in earlier studies like Farahat (2012) and Klimova (2021). The statements in both the English and Arabic versions of the scale were examined by experts in the fields of teaching EFL and educational technology to verify the scale's validity. The scale's final version included two sections: the first dealt with general information including gender, possession of mobile devices, and prior M-learning experience, while the second dealt with respondents' assessments of 14 items. This section included 14 items that measure the three components representing students' attitudes towards BMBLL: perceived ease of use (three items), perceived usefulness (eight items), social influence (three Items). All items required five-point Likert-style responses which were: "strongly disagree, disagree, neutral, agree, strongly agree". For the sake of reliability, the scale was presented prior to implementation to a pilot sample of 10 students who had previous experience in using M-Learning. They were selected from the 1st preparatory grade of Aly Ebn-Aby Taleb prep school which is far away from the research sample. The reliability of the scale was accepted as the Cronbachs' Alpha value was 0.72.

3.4. Research design

The research adopted the experimental approach in the form of a quasi-experimental design to explore the influence of using BMBLL on low achievers' EFL communication skills and their attitudes towards the use of BMBLL. The pre-posttest control group design was applied; the AEFLCS pre and posttests of equivalent groups were employed for both groups. as illustrated in table (1)

Table 1. Pretest and posttest control group design

group	Pre-test	Treatments	Post –test
Exp. group	O1	X1	O2
Cont. group	AEFLCS	X2	O2

O1= AEFCS & Attitude scale   X1= BMBL
O2=AEFCS & Attitude scale
                              X2= F-2-F teaching EFL in regular classroom

3.5. Homogeneity of the groups

Homogenity of the two groups was approved before the experimental intervention based on their performance on the AEFLCS and AtSMLL. The grades of participants in both groups were analyzed using Mann-Whitney U-test. Table (2) illustrates the results of homogeneity of the experimental group and the control group based on their performance on AEFLCS before the experimental intervention.

Table 2.

Test of homogeneity of the experimental and control groups according to their performance on AEFLCS (pre- intervention)

Skills	Group	N	Mean Rank	Sum of Ranks	U	Z	Sig	Sig.(2-tailed)
Total	Exp. gp	5	6.00	30.00	10.00	.529	0.597	Not significant
	Cont.gp	5	.5.00	25.00				

As shown in table 2, (U) value (10.00), (Z=.529) is not significant (α=0.05), which means that no significant differences were found between mean ranks of both groups in respect to their performance on the pre-test of AEFLCS. Therefore, both groups were considered homogeneous before experimental treatment, regarding their EFL communication skills.

Table (3) illustrates the results of homogeneity of the experimental group and the control group based on their performance on AtSMLL before the experimental intervention.

Table 3

Test of homogeneity of the experimental and control groups according to their performance on AtSMLL (pre- intervention)

Attitude	Group	N	Mean Rank	Sum of Ranks	U	Z	Sig	Sig.(2-tailed)
Total	Exp. gp	5	5.90	29.50	10.50	.422	0.673	Not significant
	Cont.gp	5	.5.10	25.50				

As shown in table 3, (U) value (10.50), (Z=.422) is not significant (α=0.05), which means no significant differences were found between mean ranks of both groups in respect to their performance on the pre-test of AtSMLL. Therefore, both groups were considered homogeneous before the treatment regarding their Attitude towards BMBLL.

3.6. Intervention and data collection

The participants in the current research involved 10 low achievers of EFL communication skills who were enrolled in two equal groups based on their performance on AEFLCS and AtSMBLL to study the same content of the module*: "Family and me"* from the English book designed for first graders in preparatory schools for the 1st semester of the school year 2022/2023. The participants of the control group were taught through face-to-face teaching in their regular classroom, whereas the participants of the experimental group were taught via BMBLL.

Pre-service teachers were assigned to teach the two groups for four weeks under the supervision of the regular teacher and the researchers. Procedures of the experiment were conducted in three phases:

(1) Pre intervention phase through which the researcher conducted two training sessions; (a) the first one, which was conducted on the 2nd of November, was for the teachers of both groups and during which teachers were provided with the purpose of the experiment, the teaching methods, the username and password of the mobile based web site, and the technical information required for the course material, (b) the second training session was for the students of the experimental group, through which they were encouraged to practice their EFL communication skills through blending M-learning with class-based learning. Moreover, each student was provided with a username and a password, the URL for BMBLL, and the information needed for utilizing the web site effectively to improve each communication skill.

(2) Intervention phase: The experiment lasted five weeks starting from the 7th of November to December 15th, 2022.

(3) Post intervention phase: At the end of the experiment, the AEFLCS was administered to the participants of both groups on the 14th of December, whereas the AtSMBLL was administered to the participants of both groups on the 15th of December.

4. Results

To answer the research questions, a non-parametric Mann-Whitney U-test for independent samples was used, and the results represented according to the research questions.

RQ1: "What is the effectiveness of BMBLL in developing EFL communication skills among low achievers of the 1st grade of preparatory stage in Egypt?". Table 4 illustrates the results of Mann-Whitney U-test of the participants' total performance (post-test) on the AEFLCS of the experimental group and control group. Table 4 illustrates the results of Mann-Whitney U-test of the participants' total performance (post-test) on the AEFLCS of the experimental group and control group.

Table 4.

Results of Mann-Whitney U-test of total performance of the research groups on the AEFLCS (post-test)

Skills	Group	N	Mean Rank	Sum of Ranks	U	Z	Sig	Sig.(2-tailed)
Total Post-test	Exp. gp	5	8.30	42.50	2.000	.529	0.009*	Significant
	Cont.gp	5	3.00	15.00				

As depicted in table (4), the total score of the participants' performance on the AEFLCS reveals that the mean rank of the experimental group (8.30) is higher than the mean rank of the control group (3.00). U value (=2.000) is significant at 0.05, which means that the experimental group outperformed the control group in their EFL communication skills. These differences led to accepting the hypothesis: "The BMBLL is effective in developing communication skills in EFL among low achievers in the 1st grade of the preparatory stage in Egypt". Therefore, it can be concluded that the BMBLL is effective in developing EFL communication skills among low achievers of the 1st grade of the preparatory stage in Egypt.

To investigate the effectiveness of BMBLL on each EFL communication skill, Table 5 illustrates the results of Mann-Whitney U-test of the participants' performance (post-test) on the sub-tests of AEFLCS of the experimental group and control group.

Table 5

Results of Mann-Whitney U-test of performance of the research groups on the sub-tests of the AEFLCS (post-test)

Skills	Group	N	Mean Rank	Sum of Ranks	U	Sig	Sig.(2-tailed)
Reading Post	Exp. gp	5	8.00	40.00	0.000	0.008*	Significant
	Cont.gp	5	3.00	15.00			
Writing Post	Exp. gp	5	7.10	35.50	4.500	0.093	Not significant
	Cont.gp	5	3.90	19.50			
Speaking Post	Exp. gp	5	7.60	38.00	2.000	0.020*	Significant
	Cont.gp	5	3.40	17.00			
Listening Post	Exp.gp	5	7.70	38.50	1.500	0.008*	Significant
	Cont.gp	5	3.30	16.50			

Results in table (5) illustrate significant differences in the mean rank of the participants' performance on the sub-tests of reading, speaking, and listening in favor of the experimental group. The mean rank of the participants' performance on the reading sub-test for the experimental group is (8.00) which is higher than the mean rank for the control group. The U value (0.000) is significant, thereby confirming the hypothesis: "There is a statistically significant difference between the mean rank of the control and the experimental groups' scores on the post-application of the reading section of AEFLCS in the favor of the experimental group". Similarly, the mean rank of the samples' performance on the speaking sub-test, with the U value of (0.020), affirms the hypothesis: "There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the speaking section of AEFLCS in the favor of the experimental group". Likewise, the mean rank of the participants' performance on the listening sub-test, with the U value of (0.008) leads to approving the hypothesis: "There is a statistically significant difference between the mean rank of the control and the experimental groups' scores on the post-application of the listening section of the AEFLCS in the favor of the experimental group".

On the other side, results in table 5 demonstrate statistical differences between the mean rank of the participants of the experimental and control groups in favor of the experimental group. However, these differences are not significant as the U value (0.093) >(0.05), thus rejecting the hypothesis: "There is a statistically significant difference between the means of the control and experimental groups' scores on the post-application of the writing section of the AEFLCS in the favor of the experimental group".

As shown in table 5 the mean ranks of the experimental group were higher than those of the control group which means that the differences were in favor of the experimental group. Moreover, these differences were significant as the U values were less than (0.05). These results lead to the conclusion that BMBLL was found effective on developing the EFL communication skills of reading, listening, and speaking, whereas it was not effective in developing the writing skills among low achievers of the 1st grade of preparatory stage in Egypt.

RQ2: "What is the effect of using BMBLL in improving the attitudes of low achievers of the 1st grade of preparatory stage in Egypt towards BMBLL?". Table 6 illustrates the results of Mann-Whitney U-test of participants' performance (post-test) on the AtSMBLL of the experimental group and control group.

Table 6

Results of Mann-Whitney U-test of performance of the research groups on the sub-tests of the AtSMBLL (post-test)

Attitude	Group	N	Mean Rank	Sum of Ranks	U	Z	Sig	Sig.(2-tailed)
Total	Exp. gp	5	8.00	40.00	0.000	.009	0.009	Significant
	Cont.gp	5	3.00	15.00				

As depicted in table (6), the total score of participants' performance on the AtSMBLL revealed that there are differences in the mean rank between the performance of the experimental group (8.00) and the control group (3.00) on the AtSMBLL. With the U value (=0.000), this difference is considered significant at 0.05, thus confirming the hypothesis: "There is a statistically significant difference between the mean rank of the control and experimental groups' scores on the post-application of the AtSMBLL in the favor of the experimental group". Consequently, the BMBLL has a positive effect on developing attitudes towards MBLL among low achievers of the 1st grade of the preparatory stage in Egypt.

5 Discussion

The purpose of this study was to explore the effect of using a BMBLL environment on the acquisition of EFL communication skills among low achievers in the first grade of prep schools in Egypt, and its effect on their attitudes toward BMBLL. The study employed a quasi-experimental design to answer the research question, and Salmon's (2014) model was used as a guiding framework in the design of the BMBLL environment.

The results indicated a significant difference in the favor of the experimental group between the mean rank of the experimental and control groups with regard to the overall score of low achievers' performance on the AEFLCS post-test. Consistent with prior research by Hou et al. (2014), Demir and Akpinar (2018), and Li (2023), this result confirms the BMBLL's effectiveness in developing EFL communication skills among low achievers. This outcome could be attributed to the attributes of BMBLL which offers a convenient, flexible, pervasive, and individual environment that is suitable for all students, especially low achievers who might be embarrassed in class to ask the teacher to repeat and provide them with individual support within the traditional learning environment. However, this result contradicts the conclusion of Elfeky and Masadeh (2016) who found a negative impact of M-learning on students' performance. They attributed this to the absence of guidance during their usage of mobile devices, the propensity for distraction of low achievers in the early childhood and prep classes, and their inability to organize their schedules for independent reading and self-learning of the course materials.

The results showed a statistically significant difference between the mean rank of the control and the experimental groups' scores on the post-application of the reading test. This result is in line with the results of Hazaea and Alzubi (2016), and Novembli and Azizah (2018), Valizadeh (2022), Li (2023), and Chakravarthy and Sunitha (2023), who indicated that M-learning has positive effects on developing students' EFL reading skills. This could be explained by the benefits of integrating Mobile based activities in the BMBLL which provided students with online and offline dictionaries, online resources and memos which helped them master reading skills. BMBLL offered the low achievers a structured stress-free environment which encouraged them to read texts, analyze, ask for help, answer, send their responses, and get e-teachers' corrections and feedback.

Concerning listening skills, the results revealed that the performance of the experimental group on the listening test was significantly higher than that of the control group, thus confirming the effectiveness of the BMBLL environment in developing listening skills among EFL low achievers. This result aligns with the results of Hu and Hsu (2021), Helwa (2017), Salih (2019), and Al-Shamsi et al. (2020) who found that M-learning enhanced EFL listening skills. This result could be explained by the fact that mobile

devices can provide students with several opportunities to listen until they comprehend the listening topic. As listening is an active process of making sense of what is heard, teachers, especially of low achievers, can utilize M-learning to have students listen to texts via vocal service on their mobile phones several times until they master the listened content. Then, the teacher can provide students with quizzes on listening comprehension based on the aural text to practice the acquired listening skills (Jiang et al., 2021). Moreover, BMBLL could give students the opportunity to listen to native English speakers' conversations, which the instructor might explain to them to improve their listening skills (Helwa, 2017).

The results also revealed that the mean rank of the experimental group outperformed the control group on the speaking test, thus confirming our hypothesis regarding the positive effect of BMBLL on developing speaking skills among EFL low archivers. This finding is consistent with the research by Sobh (2018), Hammam (2020) and Hekal (2022), Aliakbari and Mardani (2022) who found that M-learning had a significant effect on learners' EFL speaking skills. This may be attributed to m-learning's capability to help students learn the proper use of grammatical structures and pronunciation, increase learners' vocabulary, and provide them with appropriate contexts to practice the recently taught vocabulary (Winardi, 2020). Additionally, the proposed BMBLL provided low archivers opportunities to record their speech repeatedly without feeling embarrassed in front of their peers, send their recordings to their teacher, and receive private feedback, then the student shared the corrected speech with the peers. This cycle of work and success improved the low achievers' proficiency that was reported through their performance on the speaking test.

The presented results of participants' performance on the writing sub-test showed that even though there were statistical differences between the mean ranks of the two groups in the favor of the experimental group, these differences were insignificant, thus rejecting our hypothesis regarding the positive effect of BMBLL on developing EFL writing skills among low achievers in Egyptian prep schools. This finding is inconsistent with the research by Jassim and Dzakiria (2019) which found positive effects of m-learning on developing EFL writing skills among regular middle school students, and Linuwih and Winardi's (2020) study which found a positive

correlation between the use of M-learning and the development of writing skills among university students. This contradiction could be attributed to the sample's characteristics, as the sample was regular middle school students who can develop their writing skills at their own pace without feeling embarrassed in front of the whole class as in the study of Jassim and Dzakiria (2019). Likewise, the participants of the second study (Linuwih & Winardi, 2020) were university students who may have self-regulated learning skills that enable them to manage their learning process without being distracted. On the other hand, the participants in the current study are low achievers middle school students who struggle to generate ideas, manage their study time, and locate the right vocabulary form and spelling. This conclusion is in accordance with the results of Setyowati et al. (2020) who concluded that writing is a creative activity that requires the kind of creative thinking process that low achievers may lack. Additionally, the time for intervention might not be sufficient for low achievers to improve their writing skills in a BMBLL environment.

The results revealed significant improvement of attitudes towards BMBLL among low achievers of the first grade of middle schools in Egypt. This result is going with the results of some studies in which the participants were university level such as: Viberg and Grönlund (2013), Dashtestani (2016), Briz-Ponce et al. (2017), Klimova (2021), Aliakbari and Mardani (2022).This outcome could be attributed to the opportunities provided by BMBLL for low achievers, who benefit from its realization of individuality, flexibility, freedom of usage, self-paced, situated learning, as well as privacy for receiving corrections of mistakes and appropriate feedback. Also, low achievers' perception of the usefulness of BMBLL was augmented because of the improvement of their EFL communication skills. So, they became motivated to participate in situations of EFL communication, and enthusiastic to use learning resources to search and obtain new vocabularies and employ them in different contexts. Likewise, perception of ease of use of BMBLL was also supported among low achievers through the careful design of BMBLL that facilitated easy logging in, navigation, chatting with peers and teachers, creating requests for teacher's support either in audio or in text message, sending assignments, answering quizzes, and getting private feedback from teachers. The attribution of the attitudes' improvement towards BMBLL to both perceived usefulness and perceived

ease of use among low achievers, is concurrent with the results of Farahat (2012), and Briz-Ponce et al. (2017). Moreover, as the low achievers perceived the usefulness of BMBLL and its ease of use, they got intention to use it in the future. This was evident in their responses to the items of the AtSMLL as they declared that they have intention to use BMBLL in the future and they recommend their colleagues to use it. These interpretations are consistent with the results of Farahat (2012) and Nobre and Moura (2017).

6 Conclusion

The aims of this research were to investigate the effectiveness of a BMBLL environment in developing EFL communication skills among low achievers in prep schools in Egypt, and to explore its effects on their attitudes towards using MBLL. The results revealed a positive effect of BMBLL in developing attitudes towards MBLL among low achievers of the first grade of middle schools in Egypt. Also, the results revealed a significant impact of BMBLL in developing low achievers' EFL reading, listening, and speaking skills. However, the effectiveness of BMBLL was not significant in developing low achievers' EFL writing skills. Two conclusions can be drawn from these results. First, successful BMBLL is created when teachers and designers collaborate to address the unique needs of low achievers by involving them in a variety of mobile and classroom activities that are tailored and organized to help them practice their EFL communication skills. These activities also follow up on their practice, give them the necessary support and feedback, and get them ready for in-class discussions with the teacher and their peers. Second, as the BMBLL was not significantly effective in enhancing the writing skills of low achievers, further replication of this research with a special design and a strong emphasis on writing activities may be advised.

Limitations

The first limitation of this research is the small sample size (n=10), although it was reasonable as the participants belong to a small population of EFL low achievers. This limitation may limit the generalizability of the study's findings. Second, only one unit of the content was used over a short period of time. Future research might address these limitations.

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