A Blended Integrative Language Teaching Approach-Based Program for Developing EFL- Non-Majors' English Language Knowledge and Digital Literacy Skills

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Abstract

The present study was conducted to investigate the impact of a blended program using integrative language teaching approach on developing EFL non- majors' English language knowledge and digital literacy skills. The study used the quasi-experimental research method (pre-post control-experimental design). Sixty participants enrolled in the first year at the Faculty of Engineering were randomly assigned to two intact groups: a treatment group (n=30) and a control group (n=30). The participants in the treatment group were trained and instructed using a blended integrative language teaching approach-based program whereas their counterparts in the control group did not receive such training as they received regular instruction. Instruments of the study included a needs- analysis survey of grammar structures, a needs- analysis survey of academic writing conventions, A needs-analysis questionnaire of English language topics, a needs-analysis questionnaire of digital literacy skills, a test of English language knowledge and a scale of digital literacy skills. The findings revealed that the participants in the treatment group significantly surpassed their counterparts in the control group in the post-performance on the test of English language knowledge and the scale of digital literacy skills.

***Keywords*:** blended integrative language teaching approach, language knowledge, digital literacy.

Introduction

English as a lingua franca has become the dominant language of communication throughout the world. Progressively, English has been the medium for world-wide broadcasting of information and knowledge amongst people of different first languages in the field of business, commerce, and the sciences as well as in academia. Additionally, English is the language of scientific research and technological advancement. Within the context of English as a foreign language (EFL), English has also been increasingly relevant in both the employment and education sectors. Consequently, all language skills should be taught and learnt in an integrative way to enable learners achieve both linguistic and communicative skills of the English language through integrating all language skills both appropriately and effectively.

Globally, the elevation of technology in the 21st century— such as Web 2.0 and emergence of tools like wikis, blogs, LMS, podcast, social media, and YouTube— has become part of the regular world around us all, students and teachers alike. The current revolution in information and communication technologies ICT has greatly affected the way we learn, and the way teachers teach and consequently has brought the new ambience in today's teaching English as a foreign language. Since the world is changing rapidly, teachers need to be equipped with updated knowledge and innovative techniques to keep up with the demands for this changing era. Those who are not digitally literate will deprive themselves of the advantageous impacts of digital technologies. Therefore, the use of ICT in supporting language learning is a necessity, not only to improve the effectiveness and quality of learning, but also to increase the mastery of ICT for both teachers and students in a technological era that is constantly changing and developing.

The integrative language teaching approach

The integrative language teaching approach is a whole-language approach that teaches all language skills together at the same time. It involves flexible instruction that integrates teaching all language micro skills (vocabulary, grammar, pronunciation, spelling, etc.) through macro skills (listening, speaking, reading,

writing) in different tasks together simultaneously. Since all language skills are equally essential for improving both learners' academic and communicative abilities, all language skills should be taught through integrative classroom teaching situations (Ahmad, 2014; Xu & Chen,2016 and Alaye & Tegegne, 2021). In other words, this approach emulates the natural way of learning and using the language. In daily life situations, it is very rare to use language skills in a segregated way. For example, when one is asked a question, s/he needs to listen well, comprehend, and use the appropriate vocabulary to speak well all at the same time. Similarly, during practicing conversation in the classroom learners could not only focus on speaking, but they also need to listen carefully to respond appropriately selecting the appropriate vocabulary and structures to let the conversation flaws smoothly.

The integrative language teaching approach is thus based on the belief that language is not just a collection of isolated skills and knowledge areas, but rather a complex system that is interconnected and interdependent. Moreover, real life communication requires not only knowledge of language, but also knowledge of how to use the language purposefully in communicative situations. Therefore, the approach seeks to provide learners with opportunities to use and apply their language skills and knowledge in real-life situations, such as in the workplace, in higher education, or in social contexts. So, applying the integrative language teaching approach will enable learners to be exposed to authentic language use, and allow teachers to track their learners' progress realistically in the different language skills at the same time (Ahmad, 2014; Xu & Chen,2016 and Alaye & Tegegne, 2021).

Using segregated language skill approach, teacher-centered methods, the outdated teaching materials, and lack of motivation on the part of the learners, according to Fareh (2010) constitute some of the major problems that render EFL programs unable to raise learner's proficiency in English especially in the Arab World countries. He adds that most teachers still use the fragmented approach, e.g., teaching grammar away from reading and writing, which decreases the learners' level of communicative competence.

The use of the integrative language skills approach requires

both teachers and learners to play important roles. Instead of being a lesson planner, knowledge provider, practice controller or performance evaluator, teachers should be facilitators, organizers of various activities, creators of authentic situations and facilitators of learners' learning. Teachers should provide sufficient opportunities for fostering the integrated practice of language (reading, writing, listening, and speaking) (Aykut, 2010; Fareh, 2010; and Alaye& Tegegne, 2021). Teachers should also believe in their learners' ability to learn and motivate them to be engaged in the activities provided. Similarly, learners need to work on the four language skills from the beginning regardless of their language levels. They also need to participate in all language activities, to be confident to speak, ask and answer questions, participate in exchanging information and be responsible in managing their learning (Richards & Rogers, 2001and Xu & Chen 2016).

Blended environment in integrative language teaching instruction:

Over the last two decades, the developments of technology have had great impact on language teaching and learning as well. However, there is a difference between the kind of earlier developments of technology and the recent ones. The earlier developments (e.g., language laboratory) have facilitated communicative experience through communication between human-to-machine, which is not the normal way communication through language works. Modern technology, on the other hand, better matches the real nature of language through supporting person-to- person interaction via computer networks with other learners with the same tongue as well as native peers of the target language.

Recently, the use of integrative language teaching with technology as the enabler has been prominently highlighted as a dominant teaching approach (Arslan, 2010). The call for integration of technology in language teaching instruction has been emphasized for the sake of higher students' achievement, motivation, better interaction, the availability of various authentic material, experiential learning, ample resources of information, individualization, and responsibility. With the use of technology, a

more authentic learning environment is created as in the combination of speaking to listening which is in turn combined to seeing as in real world situations. The use of multiple kinds of media can easily bring reading, writing, listening, and speaking in single activities. This kind of instruction fosters learners' responsibility as they can control the pace of their own learning.

Blended learning environments and technology play an important role in the integrative language teaching approach. The integration of technology into language teaching can enhance the learning experience, provide learners with more opportunities for practice and feedback, and facilitate the development of digital literacy skills. The integration of technology in an EFL classroom instruction, according to McCord (2015); Ulfiana (2019) and Fuhrer (2021), can be done through:

1. A variety of online resources and activities to enhance the learning experience, such as language learning apps, online quizzes, interactive websites, social media platforms. These resources can help learners practice their language skills and knowledge, provide immediate feedback on their progress, and promote collaboration and communication among learners, as well as between learners and teachers.
2. Multimedia resources, such as videos, podcasts, and news articles, can be used to provide learners with real-life language input and to promote the integration of language skills and knowledge areas.
3. Online resources to facilitate content-based language learning, which integrates language learning with real-world topics and themes. For example, learners can use online resources to research and analyze a topic, and then present their findings in the target language.
4. Digital tools to facilitate language production, such as writing, speaking, and recording. Learners can practice their writing skills through online writing prompts or collaborative writing activities. Learners can also practice their speaking skills, such as voice recognition software or online speaking exercises.

Digital literacy and English Language Teaching

Digital literacy is considered different from computer

literacy. Away from mastery of keystrokes, Ulfiana (2019) points out that digital literacy emphasizes mastery of ideas and demands intelligent analysis and synthesis and careful evaluation of information reached. Moreover, the use of technology in digital literacy requires critical thinking skills, an awareness of the necessary behaviours expected in online environments, and an understanding of the common social issues created by technology. In relation to teaching and learning, digital literacy has led to different changes in current EFL curricula and English teaching courses as follows: (a) from paper-based to electronic/digital-based, (b) from one-dimensional to multi-dimensional, (c) from offline to online practices, (d) from isolated/individual to collaborative/connective practices, and (e) from independent, unified practices to situated, contextual ones (Ulfiana, 2019, p.34).

Digital literacy is not only about the way of using digital tools, but it is more about the way of using it for beneficial purposes. There is a need to know how to navigate through these tools for the needed information, and how to assess it for truthfulness, is just one of the ways in which digital literacy is important to our students. Consequently, integrating digital literacy into EFL instruction needs both mastering cognitive skill and digital skill at once to get the instructional purposes. Since digital literacy has been influenced by the technological advancements, so language educators must be able to follow the enhancement of technology to foster the effectiveness and quality of learning and increase ICT mastery for both teachers and students. Digital literacy skills, as McCord (2015); Ulfiana (2019) and Fuhrer (2021) point will enable students to get and filter new material, be able to manage information, analyze, create, find, share, and utilize beneficial content for succeeding in today's digital world. Integrating digital literacy into EFL classes will enable learners with their teachers' support to develop needed skills to communicate effectively, collaborate with others, and navigate the digital landscape with confidence and competence.

Context of the problem

Integrating digital literacy into English as a Foreign Language (EFL) instruction can be challenging. This is because it

requires teachers to shift from using paper-based materials to digital ones. While younger generations may have the technical skills needed to use digital devices, they may not have the digital communication skills, such as finding, creating, communicating, and evaluating information. On the other hand, older generations may have the digital communication skills, but lack the technical skills. Not all teachers have the same perception of the importance of digital literacy in EFL learning. This is because their perceptions are influenced by factors such as the availability of facilities, professional development opportunities, curriculum design, and appropriate strategies and techniques. The current curriculum and practice in many schools emphasize using digital resources to teach traditional pen and paper literacies. However, this approach does not prepare students with the skills they need to thrive in a digitally rich world.

In today's world, many careers require skills that are built through technology and digital literacy. As educators, we have a responsibility to prepare our students for these careers. This means integrating technology into our classrooms in a meaningful way. We cannot wait for the resources to come to us. We need to educate ourselves about the available options and current research. We need to find ways to use technology to address multiple literacies in our lessons. And we need to integrate technology into our classrooms on a regular basis, not just for special occasions. By integrating technology into our classrooms, we can help our students become more engaged learners, critical thinkers, and creative problem-solvers. We can also help them develop the skills they need to succeed in college, career, and life in the 21st century.

To understand the participants' needs and preferences, the researcher held free discussions and informal interviews with them. The participants expressed a common interest in learning English for real communication. They said that they had studied technical expressions and technical report writing in English Course 1 in the first semester of the 2020-2021 academic year. However, they said that they would not need to write reports in the workplace, as they would be working with numbers rather than words. They also said that they were confident that they

could learn technical jargon as needed. To get a more accurate understanding of the participants' needs, the researcher examined the content of the final exam for English Course 1 and the participants' scores. The researcher also designed and distributed a needs-analysis questionnaire on English language topics to the freshmen students at the Faculty of Engineering, Minia University. The questionnaire was designed based on the discussions with the participants, which revealed that their main concern was developing their language skills in general so that they could continue learning English independently after the course. The researcher also designed and distributed a needs-analysis questionnaire on digital literacy skills to the same group of students. The questionnaire was intended to ensure that the participants had the prerequisite skills (such as operating and managing computer applications) on which other relevant digital skills could be developed.

Previous studies have shown that the integrative language teaching approach can be effective in enhancing English language learning (Ahmad, 2014; Su, 2007). Other studies have shown that integrating technology into teaching and learning can also be beneficial (Sen, 2017; Campbell, 2016; McCord, 2015). However, there are few studies in the domain of integrating English language learning with technology, especially in the Arab world (Ulfiana, 2019; Vonti & Rahmah, 2019). One study found that many teachers are frustrated by the lack of technology in their classrooms and have given up on using technology in their instruction (Hicks, Turner & Fink, 2013). However, another study found that teachers who are adequately trained in information literacy and technology integration are more likely to use technology effectively in their classrooms (Yin Hsu & Wang, 2010; Clarke, 2014). It is important to note that simply providing students with access to technology is not enough. Successful technology use requires the active participation and guidance of a teacher to scaffold learning (Yin Hsu & Wang, 2010 and Clarke, 2014). We cannot just sit students in front of computers or mobile devices and expect learning to happen. As teachers, we must recognize the unique interests and skills that students have developed and incorporate this into our classrooms.

Previous studies have mostly focused on developing one or two language skills at a time, such as oral skills (Aljumah, 2011) or critical thinking and problem-solving skills (Kivunja, 2014). Other studies have explored the pedagogical impact of technology integration in language learning, such as the roles and perceptions of teachers and students (Alaye and Tegegne, 2021) or students' views and perceptions (Su, 2007). Still others have focused on the theoretical basis for technology integration (Siemens, 2017) or models and strategies for integrating technology into language learning (Aykut, 2008). The integration of language skills is an important feature of language learning, as it allows for interaction, task continuity, real-world focus, language and learning focus, and task outcomes. To address the lack of research on the integration of technology in developing all language skills simultaneously, the researcher developed a blended instructional program of integrative language skills teaching to enhance students' English language knowledge and digital literacy skills.

Review of related literature

Theoretical background

Integrating technology within education has been an indispensable issue. Consequently, teaching and learning activities in this digital age, according to Siemens (2017), led to moving learning theories in the same direction. Both organizations and individuals have been considered as learning entities. As a result, the increased level of attention highlights the need for a theory that addresses the link between individuals and organizational learning. Siemens (2017, 2005 & 2004) points out that behaviorism, cognitivism, and constructivism, were developed in a time when learning was not impacted through technology, do not attempt to address these types of challenges of organizational knowledge and transference. Moreover, he adds that the necessity of the personal acquisition and experience of any kind of learning needed no longer exists. Instead, we build up our competence from the connections we form.

The Connectivism theory

The conceptual framework for this study is the connectivism theory based on the works of Siemens and Downes (2005). They

have developed a new theory of learning for the digital age because technology has shifted the way people construct knowledge and learning. Siemens (2004& 2005) has noted trends in learning no longer fit into behaviorism, cognitivism, or constructivism. The current trends, according to Siemens (2017), are:

1. Learners, over their lifetime, will move into several different unrelated fields.
2. Learning happens in different ways, and a significant part of that learning happens in an informal learning environment (e.g., personal networks, through communities of practice, and through completion of work-related tasks).
3. Learning is a continuous lifelong process where learning and work are no longer two separate entities. In many situations they are the same.
4. Learners' brains are being altered with technology as the tools used to help to define and shape the way of thinking.
5. Learning can happen outside a person due to the technological capabilities of storing and manipulating information.
6. Know-how and know-what is being supplemented with know-where (memorization is not as important as knowing where to find information) (p.42).

Therefore, Siemens and Downes (2005) have created connectivism that fits the continuously updated social technology environment. Connectivism describes the way people learn in a network environment, whereas learning is no longer an internal, individualistic activity, that allows people to communicate, collaborate, learn, and reflect. Learning (defined as actionable knowledge) can occur outside ourselves (in an organization or a database), is focused on connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing (Siemens, 2017).Thus, connectivism, presents a model of learning that acknowledges the shifts in society where the way people work and function is altered when new tools are utilized. Connectivism provides insight into learning skills and tasks needed for learners to flourish in a digital era.

Related Studies

There is still limited research on how to integrate digital literacy into teaching English as a foreign language (TEFL). However, many studies have shown that digital literacy is important for students (Fareh, 2010; McCord, 2015; Xu & Chen, 2016). These studies investigated the practical application of using technology in a blended learning environment to promote EFL learners' language knowledge and digital literacy skills.

The use of integrative-teaching language approach and language development:

Ahmad (2014) proposed using Kumaravadivelu's framework in Saudi EFL classes because of perceiving the unsatisfactory nature of current results methods for EFL instruction. This framework allows EFL teachers to combine all language skills together, which can help them guide the learning process and encourage students to engage in meaningful interaction and natural communication. Su (2007) also found that the integrated-skill approach was effective in improving the perceptions and motivation of EFL learners in Taiwan. The study used a questionnaire survey, interviews, and classroom observation to collect data. The results showed that the integrated-skill approach helped students interact with texts and each other, which led to increased motivation and language development.

Digital literacy and English language instruction

Ulfiana (2019) conducted a study to gain understanding of the English teachers' perception on the integration of digital literacy into teaching English as a foreign language at MAN 1 Ponorogo in addition to finding out the problems of such implementation and their possible solutions. Interview, observation, and documentation were used as data collection techniques. The results revealed that English teachers perceived the integration of digital literacy as a must in today's EFL teaching. They faced some problems such as the availability of facilities, students' technological information skill, and students' mindset. These problems in implementing digital literacy were solved by providing complete facilities and giving motivation to the students to change their mindset.

Sen (2017) conducted two qualitative semi-structured interviews to find out about digital literacy in relation to teachers' pedagogy, practicality, and curriculum. Findings showed that beliefs, explicitness, responsibility of work, creativity and criticality were the factors dividing the teachers apart concerning their view of digital literacy. Earlier through using a similar qualitative case study, Campbell (2016) attempted to analyze the way pre-service English teachers perceived their own, their learners' and other teachers' digital literacy practices, and how these perceptions relate to their own practices. Results revealed that though the participants related some digital resources to their own and their learners' private life, they did not realize the use of these resources as educational tools. They also perceived the internet as overwhelming and conflated digital literacy with internet literacy.

Employing a previous case study research, McCord (2015) conducted two interviews with current teachers about their successes and challenges implementing digital literacy in their classrooms. The findings included real examples of best practice, and concerns about improper use. The study suggested the need for a balanced approach and further education to improve teacher attitudes, comprehension, and comfort level.

Commentary

Language teaching experts argue that teaching language skills in isolation is not effective. This approach produces learners with limited knowledge of language use and proficiency. Instead, teachers should use an integrated skills approach, which teaches all four language skills (listening, speaking, reading, and writing) together. This is more natural and helps learners develop a better understanding of how language works. In addition, it is important for students to develop digital literacy skills. These skills are essential for using technology in ways that are truly meaningful and productive. Students need to be able to critically consume, create, share information, collaborate, and solve problems using technology. Integrating digital literacy skills into EFL classrooms can help students develop these skills while also promoting their language knowledge.

Statement of the problem

The ability to learn new things is more important than what we already know. In the 21st century, knowledge is constantly changing, and it is more important to be able to learn new things than to memorize facts. This is why language teachers should use new teaching methods that integrate technology to prepare students to be able to learn language effectively with the help of recent digital tools. The conventional way of teaching English as a foreign language (EFL) by using different reading materials and focusing on specific vocabulary and grammar does not help learners learn the language in a communicative way. This is because this approach does not address language skills, most specifically listening and speaking skills, in a way that enables learners to use the language effectively in real-world situations.

To learn a language in a communicative way, learners need to be exposed to the language in a variety of contexts, such as listening to conversations, watching movies, reading newspapers, and writing about real- world topics to learn more about the world around them. They also need to have opportunities to practice using the language by speaking with native speakers and participating in activities that require them to use the language authentically. As a result, learners may develop good knowledge of grammar and vocabulary, but they may not be able to use the language effectively in real-world situations. All language skills, whether productive (speaking and writing) or receptive (listening and reading), are interrelated and cannot be taught in isolation. This means that learners cannot learn to speak effectively without also learning to listen effectively, and vice versa.

A more effective way to teach EFL is to use an integrated approach that focuses on all four language skills with the addition of technology. This approach uses a variety of materials and activities that allow learners to practice using the language in a communicative way. So, this study used a blended program that employed a variety of digital tools to extend English language learning for non-majors within the integrative language teaching approach.

Questions of the study

The present study attempted to answer the following question: How can a program based on a blended integrative language teaching approach be designed to develop EFL non-majors' English language knowledge and digital literacy skills? More specifically, the following questions can be branched out:

1. What is the effect of using a blended-integrative language teaching approach-based program on developing EFL non-majors' micro skills?
2. What is the effect of using a blended-integrative language teaching approach-based program on developing EFL non-majors' listening skills?
3. What is the effect of using a blended-integrative language teaching approach based-program on developing EFL non-majors' reading skills?
4. What is the effect of using a blended-integrative language teaching approach based-program on developing EFL non-majors' writing skills?
5. What is the effect of using a blended-integrative language teaching approach based- program on developing EFL non-majors' digital literacy skills?

Purposes of the study

The purpose of this quantitative study was to explore some of the digital technologies that can be implemented to promote EFL non-majors' faculty students' English language knowledge and digital literacy skills through a blended program of integrative language teaching skills approach.

The current study attempted to identify:

1. The effect of using a blended-integrative language teaching approach-based program on developing EFL non-majors' micro skills.
2. The effect of using a blended-integrative language teaching approach-based program on developing EFL non-majors' listening skills.
3. The effect of using a blended-integrative language teaching approach based-program on developing EFL non-majors'

reading skills.

4. The effect of using a blended-integrative language teaching approach based-program on developing EFL non-majors' writing skills.
5. The effect of using a blended-integrative language teaching approach based- program on developing English non-majors' digital literacy skills.

Hypotheses of the study

The present study attempted to test the following hypotheses:

1. There would be a statistically significant difference between mean scores obtained by the participants of the treatment and the control groups on the post- performance on the test of English language skills (favoring the treatment group).
2. There would be a statistically significant difference between mean values obtained by the participants of the treatment and the control groups on the post- performance on the scale of digital literacy skills (favoring the treatment group).
3. The digital literacy skills may have a significant impact on the participants' English language knowledge with different percentages.

Significance of the problem

The use of latest digital technologies in developing the different language skills in English classrooms through a blended integrative language teaching approach-based program is hopefully expected to:

1. Expose language learners to authentic language experiences that enable them to interact naturally in real communicative situations. Thus, increase their overall language proficiency and academic motivation.
2. Enable learners through applied instructional strategies in future blended learning classes to develop self-regulated learning strategies besides using technology effectively and responsibly.
3. Help teachers to prepare lesson plans that target all language skills through various comprehensive interactive activities to empower learners with the wealth and vividness of language to

succeed in real life situations.

4. Enlarge teachers' experience with every digital tool implemented so that they can teach specific subject matters easily which could provide some future beneficial consequences for language learners.
5. Enable policymakers, researchers, language learners, and teachers to adopt new technologies and access language learning resources and activities at any time and from any location, which can make learning more convenient and flexible.

Delimitations of the study

The present study was delimited to the following elements:

1. The participants were freshmen students enrolled at the faculty of Engineering, Minia University, in the second semester of the academic year 2020/2021.
2. All the participants were fresh in English Language Course 2 due to the policy of the special programs in the Faculty of Engineering, Minia University as course dropouts or repeaters have to rejoin it again in a summer semester.
3. There is no balance between male and female freshmen students at the Faculty of Engineering in both the treatment and the control groups. This is due to the sex ratio of this population.
4. The flex model of blended learning has been adopted in the present study where students complete most of their work online through the selected digital platform as well as onsite activities in a traditional classroom.
5. The English language micro-skills that have been targeted in the present study included vocabulary, conversation expressions and grammar.
6. The English language macro-skills that have been targeted in the present study included listening, reading, and writing.
7. The virtual or e-learning environment, which is a type of online classroom, implemented in this study is Google classroom.
8. The English topics included in the program were determined based on learners' needs. A list of some common topics was administered to freshman students at the Faculty of

Engineering to select what they need and would like to study. Suggestions for other topics were allowed. The chosen topics are:social life (flats and houses- food and restaurants- shopping), career life (finding a job- applying for a job- writing a CV), and soft skills (communication- personal career attributes- interpersonal skills).

9. The digital literacy skills implemented to be developed included communicating language information and integrating language literacy skills with technology to extend learning.

Limitations

The present study was limited to the following elements:

1. One college (Faculty of engineering).
2. Two academic departments (Mechatronics and Petrochemicals) that form the only two special programs at the Faculty of Engineering, Minia University.

Definitions of terms

Blended Learning

Galloway-Speight, A. (2021:21) defines blended learning as a formal education program in which a student learns partly through online-delivered instruction of content with some degree of student control over time, location, and pace and partly through more traditional face-to-face instruction away from home.

It's defined operationally in this study as a teaching model that combines face-to-face instructional techniques, teacher-led online modules both synchronous and asynchronous, and student's individualized learning.

Integrative language Skills Teaching Approach

Ahmad (2014:104) defines it as a whole-language approach or a multi-skill syllabus incorporating all language skills, productive and receptive, in one discourse.

Operationally, it is defined in this study as a whole language approach where all language skills as well as knowledge of vocabulary, spelling, pronunciation, syntax, meaning, and usage are simultaneously integrated in a program presented to engineering freshmen to enhance their language learning.

English language Knowledge

English language knowledge is operationally defined in this study as the ability to understand, use, and communicate in the

English language. It includes knowledge of vocabulary, grammar, and pronunciation, as well as the ability to read, write, and listen to English.

Digital Literacy

Ulfiana (2019) defines digital literacy in the educational field as implying reading and writing skills which modified in a digital form with no need for paper, books, or pencils.

The Cornell University website (2009, cited in Sen, 2017: 5) defines digital literacy as the ability to find, evaluate, utilize, share, and create content using information technologies and the internet.

Operationally, digital literacy skills are defined in this study as the ability of engineering freshmen to use digital technology to communicate language information effectively and to extend all language skills learning in the future as well.

Design of the study

Method

The present study utilized quasi-experimental research design. The pre-post control group design (Hatch and Farhady, 1982) was used in designing and conducting the study. A treatment group and a control group were exposed to pre and post means of getting data. The treatment group was only instructed and trained using a blended integrative language teaching approach-based program while the control group did not receive such training.

The Pilot Study

The pilot sample of the study consisted of thirty (30) male and female English non-major freshmen students at the Faculty of Engineering, Minia university in the academic year 2020-202. The pilot study lasted for fifteen days before the treatment and helped in determining the validity and reliability of the study tools.

Participants of the Study

Sixty (60) freshmen students studying English Language Course (2), enrolled in the first year at the Faculty of Engineering, Minia University in the academic year 2020/2021, were recruited for this study. The participants were divided into two groups based on their department. Thirty (30) participants, enrolled in the Mechatronics department, were recruited in the treatment group

whereas the other thirty (30) participants, enrolled in the Petrochemicals department, were recruited in the control group. All the participants were of the same age level and the same grade level. Homogeneity was established between participants in both groups at the entry level before the intervention as follows:

Age.

All the participants recruited in both groups were aged between 18 and 19 at the beginning of the study.

Linguistic background.

All the participants in both groups studied English for 12 years (from primary (1) till the end of the secondary stage) in Minia Governorate. Additionally, all the participants recruited in this study have passed English Language (1), as a prerequisite for English Language (2), at the first semester of their first tertiary level in the academic year 2020-2021.

Instructor

The researcher taught only the experimental group by herself while the control group was taught by another lecturer. This was done to avoid contamination of the procedures of teaching the control group and to keep the two groups intact.

Variables of the Study

The independent variable.

The use of a blended integrative language teaching approach-based program.

The dependent variables.

The level of English language knowledge and the level of digital literacy skills.

Instruments of the study

1. ***A needs- analysis survey of grammar structures***.

Grammar structures had been listed after reviewing the related literature and were administered to a group of jury members to select the most significant and essential structures for the study participants to be included in the present program.

2. ***A needs- analysis survey of academic writing components.***

Academic writing components had been listed after reviewing the related literature and were administered to a group of jury members to select the most significant and relevant components for the study participants to be included in the present program.

3. ***A needs-analysis questionnaire of English Language topics*.**

***Purposes of the questionnaire*.** Identifying the needs and desires that the freshmen students at the Faculty of Engineering would like to study in the present program. It was based on the discussion that revealed their main concern on developing their language skills generally to be enabled to pursue their language learning independently after that.

***Construction of the questionnaire*.** (a) Reviewing the literature related to the domain of English language topics, (b) Stating the objectives of the questionnaire, (c) Designing a preliminary questionnaire. It consists of five domains with 10 topics each, (d) Evaluating the preliminary form of the questionnaire by a jury of 5 TEFL experts, (e) The final version of the questionnaire after modification consists of three domains with 10 topics underneath each.

***Validity of the questionnaire*.** A jury of 5 TEFL experts was asked to approve the validity of the questionnaire. 80% of them approved of its face validity, suitability and appropriacy for the study participants.

***Administration of the questionnaire*.** The questionnaire was administered to freshmen students at the Faculty of Engineering to determine their needs and desires in relation to English language domains and topics.

***Results*.** The topics that most of the participants agreed on including them in the course were:

1. Social Life (flats and houses- food and restaurants- shopping).
2. Career Life (finding a job- applying for a job- writing a CV).
3. Soft Skills (communication- personal career attributes- interpersonal skills). Table (1) presents the percentage of the participants' choice of the items of the questionnaire with its three domains.

Table (1)
Domain/topic distribution
Of the needs-analysis questionnaire of English language topics. N=30

The Domain	Corresponding Number of Topics	Domain/Response Distribution
Social Life	1	10%
	2	40%
	3	30%
	4	80%
	5	90%
	6	10%
	7	45%
	8	40%
	9	40%
	10	95%
Career life	11	30%
	12	20%
	13	10%
	14	20%
	15	25%
	16	80%
	17	90%
	18	40%
	19	80%
	20	40%
Soft Skills	21	100%
	22	80%
	23	40%
	24	90%
	25	40%
	26	30%
	27	20%
	28	30%
	29	40%
	30	30%

4. ***A needs-analysis questionnaire of digital literacy skills.***

Purposes of the questionnaire. Identifying the digital literacy skills that the freshmen students at the Faculty of Engineering already have. The basic skills in the domain of digital literacy were included to ensure that the participants have the prerequisites

based on which other relevant digital skills can be developed.

***Construction of the questionnaire*.** (a) Reviewing the literature related to the domain of skills of digital literacy, (b) Stating the objectives of the questionnaire, (c) Designing the questionnaire which consists of two main domains with a total of 23 skills related to these categories, and (d) Evaluating the form of the questionnaire by a jury of 5 TEFL experts.

***Validity of the questionnaire*.** A jury of 5 TEFL experts was asked to approve the validity of the questionnaire. 80% of them approved of its face validity, suitability and appropriacy for the study participants.

***Administration of the questionnaire*.** The questionnaire was administered to freshmen students at the Faculty of Engineering to determine their present digital literacy skills.

Results. Analyzing the data obtained revealed that all the participants of the treatment group had professional level of basic digital skills. More specifically, they had professional knowledge and skills concerning the operation of different digital devices (e.g., desktops, laptops, tablets, smart phones, etc.) as well as the management of different computer applications (e.g., browsers for searching the Internet, resources for finding information, filling out a Google form online). As for the digital communication of information, most of the participants showed developing to professional levels due to their previous experience with the digital transformation of education in their general secondary stage resembled in the use of tablet devices. Table (2) presents the percentage of the participants' choice of the items of the questionnaire:

Table (2)
Domain/skill distribution
Of the needs-analysis questionnaire of digital literacy skills. N=30

The domain	Domain/ sub-category	Corresponding number of skills	Domain/Skill Distribution	
Basic digital skills	***Operation of digital devices (Desktops, laptops, tablets,***	1	Professional	100%
		2	Professional	100%
		3	Professional	100%

	smart phones, etc.)	4	Professional	100%
		5	Professional	100%
	Manage computer applications (e.g. browsers for searching the Internet, resources for finding information, filling out a Google form online)	6	Professional	100%
		7	Professional	100%
		8	Professional	100%
		9	Professional	100%
Digital communication	***Communicate information through digital technology***	10	Developing	40%
			Professional	60%
		11	Professional	100%
		12	Professional	100%
		13	Professional	100%
		14	Professional	100%
		15	Developing	40%
			Professional	60%
		16	Professional	100%
		17	Professional	100%
		18	Professional	100%
		19	Developing	40%
			Professional	60%
		20	Developing	40%
			Professional	60%
		21	Developing	20%
			Professional	80%
		22	Developing	30%
			Professional	70%
		23	Developing	40%
			Professional	60%

5. *A Test of EFL Knowledge*

Purpose of the test. A test of EFL knowledge was designed by the researcher for freshmen students enrolled at the Faculty of Engineering to assess their knowledge of the micro (vocabulary, conversation expressions and grammar) and macro (listening, reading and writing) skills of English to ensure equality of the

participants in the treatment and control groups through piloting and measure the degree of improvement of the participants in both groups on their knowledge of the targeted aspects of English after finishing the course.

Construction of the test. It consists of two sections: micro and macro skills. The micro-skills section includes the grammar section with 30 items, conversation expressions section with 20 items and vocabulary section with 20 items. The macro-skills section includes a listening section with 20 items, a reading section with 20 items and a writing section with 20 items with the total number of 130 items for the whole test. It is constructed according to a table of specification based on the selected English Language topics of the suggested program. Items are of the multiple-choice type. One point is given for each test item. The maximum score of this test is 130.

Instructions for the test. They are written in English. They are brief and easy to understand. They include information about the purpose of the test, the way of recording the answers and the time allowed to complete the test.

Piloting the test. Piloting the test was done with a group of thirty (30) male and female freshmen students enrolled at the Faculty of Engineering, Minia University in the first semester of the academic year 2020/2021. Those participants were excluded later from the intervention. Time taken by each student was recorded, divided by the whole number of the participants who took the test which was found to be 90 minutes. Thus, the testing time was 90 minutes.

Validity of the test.

1. The face validity of the test.

It was determined by submitting it to a jury of 5 TEFL experts to judge its validity according to the following criteria: linguistic stating of items, how far the items measure the objectives of the program and suitability of items for the participants. The suggestions and recommendations of the jury members were taken into consideration and the test was revised to reach its final form.

2. Pearson correlation formula. It was used to determine the internal consistency of the test. The same piloting sample (30 non-

major freshmen students at the Faculty of Engineering) took the test. The internal consistency of the individual items of both section one (micro-skills) and two (macro-skills) was calculated as shown in table (3). The correlation between the two sections of the test and the total test was determined as shown in table (4). The values of the correlation coefficient, ranged from (0.385: 0.665), are considered acceptable.

Table (3)
Establishing the internal consistency of the test
The correlation of the skills of each section with the total of that section

Sections	Skills	Internal consistency
Section one (micro-skills)	Grammar	**.385***
	Conversation expressions	**.544****
	Vocabulary	**.665****
Section two (macro-skills)	Listening	**.654****
	Reading	**.587****
	Writing	**.403***

Note. ** Correlation is significant at the 0.01 level.
Note. *Correlation is significant at the 0.05 level.

Table (4)
The correlation of the total of each section with the total of the two sections of the test

Sections	Internal consistency
The total of section one (micro-skills)	.783**
The total of section two (macro-skills)	.473**

Note. **Correlation is significant at the 0.01 level.

Reliability of the test.

Establishing the reliability of the test was done during piloting. The same piloting sample (30 non-major freshmen students at the Faculty of Engineering) took the test. The reliability coefficient of the test was determined using Kudr-Richrdson (21) coefficient. It is (0.927). It is consideredacceptable as shown in table (5).

Table (5)
Establishing the reliability of the test Kudr- Richrdson (21) coefficient

The test sections	Means	Variance	Standard Deviation	No. of items	*Kudr- Richrdson (21)coefficient*
Grammar	13.33	6.023	2.454	30	0.849
Conversation expressions	9.40	7.007	2.647	20	0.776
Vocabulary	8.60	7.972	2.824	20	0.792
Section 1	31.33	18.161	4.262		0.812
Listening	7.37	5.137	2.266	20	0.722
Reading	9.43	3.564	1.888	20	0.761
Writing	6.53	1.085	1.042	20	0.818
Section 2	23.33	9.057	3.010		0.907
Total sections	54.67	22.644	4.759	130	0.927

Item analysis. It evaluates the effectiveness of the items and of the test.

Index of difficulty. Analysis of the responses to individual items was calculated to determine item difficulty for the test. The difficulty of the items is understood as the proportion of the persons who answer a test item correctly. The index of difficulty of this test ranged from 0.45 to 0.68 which is considered acceptable.

Item discrimination. It is the ability of the item to differentiate more knowledgeable students from the less ones. To calculate knowledge, the top scoring students are separated from the bottom scoring students and then their response patterns would be compared. It was found that the items had a positive discriminating power. None of the items had a zero-discriminating power. The power of discrimination of the test ranged from 0.39 to 0.47 which is considered acceptable.

6. A Scale of Digital literacy Skills.

Purposes of the scale.

A scale of digital literacy skills was designed by the researcher for non-major Faculty of engineering students (freshman) to identify their ability levels in relation to the categories of digital literacy skills and measure the degree of improvement of the participants in both groups on their abilities in handling digital materials after finishing their current blended integrative English language-based

course. Moreover, the scale would enable the participants to identify any areas that need future development.

Construction of the scale.

It is constructed based on a three- point Likert-type scale. The most important and relevant categories of digital literacy skills are classified and represented in the scale through a group of five sub-categories, each followed by a group of statements that are developed for measuring participants' digital literacy skills after being involved in a blended integrative English language approach-based program with the total number of 39 statements. Each statement has three response categories rating as follows: poor, developing, and professional. Responses are given scores (weights) according to the scale response categories as follows: poor (1), developing (2) and professional (3). The maximum score on the scale is 117. This is shown in table (6).

Table (6)

The Categories of The Digital Literacy Skills Scale

No.	Scale Categories	Scale sub-categories	No. of items
1	Communicating language information through digital technology	General language learning purposes	6
2	Integrating language literacy skills with technology to extend learning	Interacting with various aspects of words, language expressions and grammatical structures	7
		Listening to podcasts, YouTube videos, Edpuzzels and other Internet-based media).	6
		Reading online texts or images (Readworks, LabXchange, TED talks and other internet-based media)	10
		Writing using various digital tools (blogs, kahoot, e-quizzes, Google docs and other internet-based media).	10
Total number of items		39	
Total score		117	

Instructions for the scale.

They are written in English. They are easy to understand. They include information about the purpose of the scale, its subcategories, the distribution of the scores on the response categories of the scale, and the way of recording the answer.

Piloting the scale.

Piloting the scale was done with a group of thirty (30) male and female freshmen students enrolled at the Faculty of Engineering, Minia University in the first semester of the academic year 2020/2021. Those participants were excluded later from the intervention. Time taken by each participant was recorded, divided by the whole number of participants who took the scale and was found to be 30 minutes. Thus, the allotted time for using the scale was 30 minutes.

Validity of the scale.

1. **The face validity of the scale**. It was determined by submitting it to a jury of 5 TEFL experts to judge its validity according to the following criteria: linguistic stating of statements, relatedness of the statements to the categories of digital literacy skills and suitability of the statements to the subjects. The suggestions and recommendations of the jury members were taken into consideration and the scale was revised to reach its final form. The first form consisted of 5 categories, 9 subcategories with a total of 41 statements, whereas the final version consisted of 2 categories, 5 subcategories with a total of 39 statements.

2. **Pearson correlation formula**. It was used to determine the internal consistency of the scale. The same piloting sample (30 non-major freshmen students at the Faculty of Engineering) took the scale. The internal consistency of each category was determined and the correlation between the two categories of the scale and the total scale was determined as shown in table (7). The values of the correlation coefficient, ranged from (.742: .942) and significant at (0.01 level), are considered acceptable.

Table (7)
Establishing the internal consistency of the scale/ The Correlation Between Each category and The Total Scale

The categories	Internal consistency
Communicating language information through digital technology	0.742**
Integrating language literacy skills with technology to extend learning	0.942**

Note. **Correlation is significant at the 0.01 level.

Reliability of the scale.

Establishing the reliability of the scale was done during piloting. The same piloting sample (30 non-major freshmen students at the Faculty of Engineering) took the scale. The reliability coefficient of the scale was determined using:

1. **Alpha Cronbach (α) coefficient**. It ranged from (0.752) to (0.831) for each of the categories of the scale and for the total of the categories. The alpha coefficient of the whole scale is (0.831). It is considered acceptable as shown in table (8)

Table (8)
Establishing the reliability of the scale / The Cronbach Alpha's Reliability coefficient of the scale

Categories	Means	Standard Deviation	Variance	No. of items	Alpha
Communicating language information through digital technology	7.7333	.90719	.823	6	0.752
Integrating language literacy skills with technology to extend learning	40.2000	2.67040	7.131	33	0.783
Total categories	47.9333	2.67728	7.168	39	0.831

2. **Test- retest method**. It occurred with nearly two weeks intervals between the first and the second scorings. It was administered to the same randomly chosen sample (30 non-major freshmen students at the Faculty of Engineering) for calculating reliability coefficient of the scale. The reliability coefficients ranged from (0.510) to (0.0973) for each of the two categories and the total categories of the scale. The total reliability coefficient of the scale (0.973) is significant at (0.01)

level and is considered acceptable as shown in table (9)

Table (9)
Establishing the reliability of the scale
Test-Retest Reliability Coefficient of the Test

Categories	Means	SD	Variance	Correlation
Communicating language information through digital technology	7.7333	.90719	.823	0.510**
Integrating language literacy skills with technology to extend learning	40.2000	2.67040	7.131	0.962**
Total categories	47.9333	2.67728	7.168	0.973**

Note. **Correlation is significant at the 0.01 level.

The material

The material is a (Blended Integrative Language Teaching Approach-Based Program). It is a comprehensive program that aims to provide a holistic language learning experience that is engaging, interactive, and tailored to the needs of the learners. It includes a variety of language teaching skills that are integrated and blended to create a seamless learning experience that is aligned with the learners' language proficiency levels and learning goals as well as preferences. The program also incorporates digital literacy skills as the learners are taught how to use various digital tools and platforms to enhance their language learning experience, to communicate effectively in the digital world and to be able to pursue their language study independently after that.

1. The program is divided into three different modules that cover different topics based on learners' preferences and choices. These topics are: social life, career life and soft skills. Each module covers each topic through a series of three different sessions.
2. Each module includes a variety of language learning activities and tasks that are designed and selected to develop both language micro and macro skills and knowledge integrating digital literacy skills. Different learning assets such as readings, discussions, videos, and quizzes are included to enable students to interact with them. The program also includes assessments and feedback to help the learners track their progress and identify areas for improvement.
3. Each study session is designed for approximately 2 hours of

independent study time for a learner with good English and at least secondary level education. Each study session follows a standard template that provides users with a familiar framework and so makes it easier to plan study activities. The main components of each study session are as follows: (a) Session overview, (b) Learning outcomes, (c) Warm-up/ Introduction , (d) Listening asset (audio or video), (e) core content, text with illustrations, diagrams, graphs, etc., (f) Vocabulary/ Conversation expressions, (g) Grammar, (h) Discussion (face-to-face), (i) Reading, (j) Comprehension Quiz, (k) Writing Assignment, (l) Key points that are highlighted, and (m) A summary, which includes key points covered.

4. The key features of the program:

a. Its use of a blended approach to language teaching which combines traditional classroom-based instruction with online and digital resources, such as language learning apps, interactive websites, and social media platforms to engage learners with the language in a variety of contexts.

b. It integrates different language skills and knowledge areas, such as grammar, vocabulary, and content-based language learning with authentic conversation expressions through listening, reading, and writing activities. This integration is intended to create a more holistic and meaningful learning experience to enable learners to see the connections between different aspects of the language and use their language skills in real-life situations.

c. It incorporates digital tools (e.g. Mindmup app., Frayer model, edpuzzel), and platforms (Google classroom as An LMS, Read Works, and LabXchange) into the English language learning experience to develop learners' digital literacy skills to be successful in today's digital world. For instance, learners can use language learning apps to practice their vocabulary and grammar skills, and online resources such as podcasts, videos, and news articles to improve their listening and reading skills. They can also use social media platforms and online discussion forums to communicate

with other learners, practice their writing skills, and receive feedback from their peers and instructors.

d. It provides personalized learning where learners can progress through the assigned online activities and resources at their own pace within the assigned time.
e. It includes assessments and feedback to help learners track their progress and identify areas for improvement. Regular formative assessments, such as quizzes and assignments, are used to monitor learners' understanding and mastery of the language skills. This is combined with instructor's feedback to help learners identify their strengths and weaknesses and make the necessary adjustments to their learning strategies.
f. It focuses on developing learners' language skills in real-life contexts as it integrates language learning with real-world topics and themes to develop the needed language skills to succeed in their personal and professional lives.

The construction of the training program has gone through the following steps: reviewing the literature related to the domain of language skills and digital literacy skills, stating the general and the specific objectives of all modules and their sessions, preparing the content, submitting the program to 5 TEFL jury members to be judged according to the following criteria; statement of items, academic verification of the content, appropriateness of the method and the techniques used for the content and the participants of the study and applicability of the program.

Instructional design of the study

1. A needs- analysis survey of grammar structures was designed by the researcher to select the most significant and essential structures for the study participants to be included in the present program.
2. A needs- analysis survey of academic writing components was designed by the researcher to select the most significant and relevant academic writing components for the study participants to be included in the present program.
3. A needs-analysis questionnaire of English Language topics was designed and applied by the researcher to be informed about the EFL non-major freshmen students' preferences and concerns in relation to their language knowledge and skills

generally to be enabled to engage actively during the intervention and to pursue their language learning independently after that.

4. A needs-analysis questionnaire of digital literacy skills was designed and applied by the researcher to identify the digital literacy skills that EFL non-major freshmen students already must be considered as prerequisites for developing other relevant digital literacy skills.
5. Pre-testing the participants of both the treatment and control groups, (N=60), using the EFL knowledge test and the scale of digital literacy skills before the intervention to ensure their homogeneity at the entry level.

The treatment intervention. The intervention of the treatment group has gone through the following stages:

a. Google Classroom was used as the platform for teaching and learning assignments, assessment and observation focusing on the digital tools for language learning. All materials, learning assets and assignments were uploaded to this LMS. The participants used it for exchanging questions and answers, sharing ideas, uploading personal artefacts, and exchanging comments for better work enhancement.
b. The modules were used in a blended approach that was partly face-to-face teaching in a classroom and partly independent study. Instruction started with face-to-face sessions through which session overview, learning outcomes, and warm-up activities were introduced. A listening asset was introduced with some-follow-up questions. Vocabulary, language expressions and grammar were introduced and discussed. An academic writing component was then introduced with some modal activities. Then the on-line instruction followed through google classroom where all face-to face instruction materials were uploaded. Through this LMS various digital language activities were presented sequentially in each session as follows: 1- a vocabulary activity using mindmup app., Frayer model or any other graphic organizer, 2- grammar activities to be done and uploaded, 3- another relevant listening activity through using podcast or videos (e.g. edpuzzel), 4- a reading activity (e.g. Read Works or LabXchange), and 5- a writing

activity (e.g. color coding, google docs). Then all the assignment should be uploaded to google classroom before the due date.

c. Extra activities can also be combined with practical training, field study experience or other learning activity to ensure active learning. The modules are more resilient to variations in the resources available for teaching and learning in a classroom context to ensure greater flexibility.
d. An orientation was provided in the first week of study to enable learners to navigate the system, learn how to submit assignments, and learn about the course's organization.
e. Communication between students and teachers happens in MLS through synchronous and asynchronous instruction. Synchronous instruction involves students and teachers interacting in real time. Synchronous instruction can be accomplished using online live classes through Google meet. Asynchronous instruction involves students and teachers interacting through delayed-time and can occur through discussion boards, assignments posted on the teacher's LMS page with clear instructions including due date for the students to post or upload their answers.
f. The students were left free to work in groups or individually.
g. Post-testing the participants of both the treatment and control groups, (N=60), using the test of EFL knowledge and the scale of digital literacy after the intervention to compare the results with the pre-testing results.

The control treatment. Participants in the control group received instruction on the English course 2 using the regular way of face-to-face instruction with no online intervention.

Findings

Hypothesis 1

The first hypothesis of the study predicted that there was a statistically significant difference (favoring the treatment group) between mean scores obtained by the participants of the treatment and the control groups on the post- performance on the test of EFL knowledge. Statistical analysis of the obtained data showed that the treatment group achieved a higher degree of improvement than

the control group on the test of EFL knowledge as t-value (32.820) is significant at (0.01) level and beyond. Thus, the first hypothesis is confirmed. Table (10) below shows the data obtained to test this hypothesis.

Table (10)
Statistical analysis of data obtained by the participants of the treatment and the control groups on the post- performance on the test of EFL knowledge. N=30

Aspects of comparison	Group	Mean	Std. Deviation	t-value	df	Sig.	η2	Effect size
Grammer	Post-control	15.1000	3.55596	-10.810**	58	0.000	0.668	Large
	Post- treatment.	23.2667	2.11617					
Conversation Expressions	Post-control	8.9000	1.90009	-13.951**	58	0.000	0.771	Large
	Post-treatment.	15.8333	1.94906					
Vocabulary	Post- control	8.2000	2.55154	-12.014**	58	0.000	0.713	Large
	Post-treatment.	15.4667	2.11291					
Section 1 (micro-skills)	Post- control	32.20	4.197	-22.653**	58	0.000	0.898	Large
	Post-treatment.	54.57	3.411					
Listening	Post- control	5.97	2.141	-16.919**	58	0.000	0.831	Large
	Post-treatment.	15.97	2.428					
Reading	Post- control	7.90	2.234	-14.062**	58	0.000	0.773	Large
	Post-treatment.	16.40	2.444					
Writing	Post- control	6.17	1.744	-23.606**	58	0.000	0.906	Large
	Post-treatment.	16.47	1.634					
Section 2 (macro-skills)	Post- control	20.03	3.783	-26.532**	58	0.000	0.924	Large
	Post-treatment.	48.83	4.587					
Total of two sections	Post-control	52.23	5.302	-32.820**	58	0.000	0.949	Large
	Post-treatment.	103.40	6.693					

Note. **. significant at the 0.01 level

To ensure the effectiveness of the blended integrative language teaching approach-based program in improving participants' EFL knowledge, eta-squared formula statistics (η2) was used. Cohen et al. (2007:522) pointed out that when eta-squared value = 0.01, the effect is considered weak, when it = 0.06, the effect is considered medium and when it = 0.14 the effect is large. As shown in table (10) eta-squared value(η2) equals (0.949) which is considered large. Thus, the blended integrative language teaching approach-based program is considered with high effect in improving EFL non-major students'

English language knowledge.

Additionally, the comparison of the scores obtained by the participants of both the treatment and control groups in the pre-post-performance on the test of EFL knowledge revealed that the treatment group outperformed the control group as t-value (39.250) is significant at 0.01level and beyond. Eta- squared value (η2) equals (0.982) which is considered large. This is shown in table (11).

Table no. (11)
Comparison of the scores obtained by the participants of both the treatment and control groups in the pre-post performance on the test of EFL knowledge. *N=30*

Aspects of comparison	Group	Mean	Std. Deviation	t-value	Df	Sig.	η2	Effect size
Grammer	Pre- treatment.	12.9333	2.57218	-18.878**	29	0.000	0.925	Large
	Post- treatment.	23.2667	2.11617					
	Pre-control	13.6000	2.77427	-1.822		0.074		
	Post-control	15.1000	3.55596					
Conversation Expressions	Pre- treatment.	7.6667	2.42591	-15.416**	29	0.000	0.891	Large
	Post- treatment.	15.8333	1.94906					
	Pre-control	8.1333	2.70036	-1.272		0.209		
	Post-control	8.9000	1.90009					
Vocabulary	Pre- treatment.	7.8000	2.55154	-16.208**	29	0.000	0.901	Large
	Post- treatment.	15.4667	2.11291					
	Pre-control	8.4000	2.77427	0.291		0.772		
	Post-control	8.2000	2.55154					
Section one (micro-skills)	Pre- treatment.	28.40	4.492	-31.824**	29	0.000	0.972	Large
	Post- treatment.	54.5667	3.41077					
	Pre-control	30.13	4.911	-1.752		0.085		
	Post-control	32.20	4.197					
Listening	Pre- treatment.	7.10	2.618	-18.901**	29	0.000	0.925	Large
	Post- treatment.	15.9667	2.42804					
	Pre-control	6.77	2.388	1.366		0.177		
	Post-control	5.97	2.141					
Reading	Pre- treatment.	7.77	2.239	-18.053**	29	0.000	0.918	Large
	Post- treatment.	16.4000	2.44385					
	Pre-control	7.47	2.285	-0.743		0.461		

	Post-control	7.90	2.234					
Writing	Pre- treatment.	5.60	1.868	-29.325**	29	0.000	0.967	Large
	Post- treatment.	16.4667	1.63440					
	Pre-control	5.53	1.756	-1.402		0.166		
	Post-control	6.17	1.744					
Section two (macro-skills)	Pre- treatment.	20.47	3.937	-31.602**	29	0.000	0.972	Large
	Post- treatment.	48.8333	4.58696					
	Pre-control	19.77	3.739	-0.275		0.785		
	Post-control	20.03	3.783					
Total of two Sections	Pre- treatment.	48.87	6.388	-39.250**	29	0.000	0.982	Large
	Post- treatment.	103.4000	6.69328					
	Pre-control	49.90	6.520	-1.521		0.134		
	Post-control	52.23	5.302					

Note. **. significant at the 0.01 level.

Hypothesis 2

The second hypothesis of the study predicted that there was a statistically significant difference (favoring the treatment group) between mean values obtained by the participants of the treatment and the control groups on the post- performance on the scale of digital literacy. Statistical analysis of the obtained data showed that the treatment group achieved a higher degree of improvement than the control group on the scale of digital literacy as t-value (56.566) is significant at (0.01) level and beyond. Thus, the second hypothesis is confirmed. Table (12) below shows the data obtained to test this hypothesis.

Table (12)

statistical analysis of data obtained by the participants of the treatment and the control groups on the post- performance on the scale of digital literacy.

N=30

Aspects of comparison	Group	No.	Mean	Std. Deviation	t-value	df	Sig.	η2	Effectsize
General language learning purposes (Part1)	Post-control	30	7.8000	1.06350	-33.891	58	0.000	0.952	Large
	Post – treatment	30	16.8667	1.00801					
Interacting with various aspects of words, language	Post-control	30	8.8333	1.39168	-26.072	58	0.000	0.921	Large
		30							

expressions and grammatical structures	Post – treatment	30	19.0667	1.63861					
		30							
Listening to Internet-based media).	Post-control	30	7.5000	0.97379	-36.850	58	0.000	0.959	Large
	Post – treatment	30	16.2333	0.85836					
Reading online texts or images media)	Post-control	30	11.1333	2.40306	-30.820	58	0.000	0.942	Large
	Post – treatment	30	26.2333	1.19434					
Writing using various digital tools	Post-control	30	10.7333	1.74066	-34.399	58	0.000	0.953	Large
	Post – treatment	30	26.3000	1.76459					
Part 2	Post-control	30	39.3667	3.31645	-53.759	58	0.000	0.980	Large
	Post – treatment	30	87.8333	3.65856					
Total of categories	Post-control	30	46.8333	3.93116	-56.566	58	0.000	0.982	Large
	Post – treatment	30	104.7000	3.99267					

Note. **. significant at the 0.01 level

To ensure the effectiveness of the blended integrative language teaching approach-based program in improving participants' digital literacy skills, eta-squared formula statistics (η2) was used. As shown in table (12) eta-squared value(η2) equals (0.982) which is considered large. Thus, the blended integrative language teaching approach-based program is considered with high effect in improving EFL non-major students' digital literacy skills.

Additionally, the comparison of the scores obtained by the participants of both the treatment and control groups in the pre-post-performance on the scale of digital literacy skills revealed that the treatment group outperformed the control group as t-value (-69.179) is significant at 0.01level and beyond. Eta- squared value (η2) equals (0.994) which is considered large. This is shown in table (13).

Table no. (13)
Comparison of the scores obtained by the participants of both the treatment and control groups in the pre-post-performance on the scale of digital literacy skills. *N=30*

Aspects of comparison	Group	Mean	Std. Deviation	t-value	df	Sig.	η2	Effect size
Communicating language information through digital technology	Pre- treatment.	7.500	0.938	-37.264	29	0.000	0.980	Large
	Post- treatment.	16.867	1.008					
	Pre-control	7.633	1.066	-0.606	29	0.547		
	Post-control	7.800	1.064					
Interacting with various aspects of words, language expressions and grammatical structures	Pre- treatment.	8.267	0.907	-31.583	29	0.000	0.972	Large
	Post- treatment.	19.067	1.639					
	Pre-control	8.233	0.898	-1.984	29	0.052		
	Post-control	8.833	1.392					
Listening to Internet-based media).	Pre- treatment.	7.000	0.788	-43.406	29	0.000	0.985	Large
	Post- treatment.	16.233	0.858					
	Pre-control	7.033	0.964	-1.865	29	0.067		
	Post-control	7.500	0.974					
Reading online texts or images media)	Pre- treatment.	11.233	1.104	-50.508	29	0.000	0.989	Large
	Post- treatment.	26.233	1.194					
	Pre-control	11.800	1.157	1.369	29	0.176		
	Post-control	11.133	2.403					
Writing using various digital tools	Pre- treatment.	11.567	1.278	-37.038	29	0.000	0.979	Large
	Post- treatment.	26.300	1.765					
	Pre-control	11.333	1.213	1.549	29	0.127		
	Post-control	10.733	1.741					
Part 2	Pre- treatment.	38.067	2.196	-63.880 -	29	0.000	0.993	Large
	Post- treatment.	87.833	3.659					
	Pre-control	38.400	2.044	-1.359	29	0.179		
	Post-control	39.367	3.316					
Total of two Categories	Pre- treatment.	45.567	2.445	-69.179	29	0.000	0.994	Large
	Post- treatment.	104.700	3.993					
	Pre-control	46.033	2.399	-0.951	29	0.345		
	Post-control	46.833	3.931					

Note. **. significant at the 0.01 level

Hypothesis 3

The third hypothesis predicted that digital literacy skills may have a significant impact on the participants' English

language knowledge, even after accounting for other relevant factors that could affect language proficiency, such as age, education level, or linguistic background. To test that hypothesis, the researcher conducted a stepwise regression analysis (after ensuring that the conditions for its use are met, including the presence of linear and normal distributions of data in the grade model of students' digital literacy skills as the dependent variable, and knowledge of English language as another dependent variable). The predictive regression equation was formulated for each step as a statistical function, and the results are presented in a table (14).

Table (14)
Stepwise regression analysis

Digital literacy skills	Predictors	constant	R	R^2	Predictable variable	B	Std deviation	t-value	f-value
English language knowledge	Total score of part 2 of the scale	7.682	.965	.932	93.2%	1.085	0.965	40.181**	1614.532**

Note. **. significant at the 0.01 level

From the table, it is evident that there is only one predictor variable, which is the total score of section 2 of the scale of digital literacy, that significantly predicts the total score of English language knowledge test. The multiple correlation coefficient (R) between the predictor variable (total score in section 2 of the scale of digital literacy skills) and the dependent variable (total score of the test) was 0.965, indicating a strong positive relationship between the two variables. The coefficient of determination (R2), which represents the percentage of variance in the dependent variable explained by the predictor variable alone, was 93.2%. Both the T-test and F-test values were statistically significant, indicating that the regression model was a good fit for the data. Therefore, it is possible to predict participants' total scores of the test of English language knowledge based on their scores on the predictor variable (total score in section 2 of the scale), using the following regression equation:

Total knowledge score = 7.682 + 1.085 (Total Score in section 2 of the scale)

This equation suggests that for every one-unit increase in the total score in section 2 of the scale, there is a predicted increase of 1.085 units in the total knowledge score, after controlling other relevant factors.

Discussion of Results

The interpretation of the results is based on the study's design incorporating the principles of connectivism.

Combining the flexibility and accessibility of modalities of face-to- face learning with online resources and technology with the principles of connectivism, blended learning offers a dynamic and learner-centered approach to English language learning. It promotes active engagement, personalized learning, collaboration, support and the integration of technology tools and resources, ultimately enhancing learners' language skills and digital literacy skills as well.

The design of the modules incorporating blended learning presented to the treatment group of the study helped those participants to:

1. Have access to a variety of authentic resources, both offline and online (e.g., textbooks, online dictionaries, grammar guides, grammar and vocabulary exercises, pronunciation tools, listening and reading interactive exercises, power point presentations, videos and podcasts, handouts and writing worksheets, different language applications, etc.). They were able to learn the language at their own pace and in a way that was tailored to their individual needs.
2. Personalize their learning experience through a customized content and a variety of activities addressing the different learning styles, their level of English proficiency, and their personal goals. This helped the participants to learn the language more effectively and efficiently.
3. Foster collaboration and interaction among participants. This was facilitated through both face-to-face meetings and Google Meet sessions. During these sessions, participants had the opportunity to share their existing language and technology knowledge and learn from one another. This collaborative environment proved particularly beneficial for shy or apprehensive students who may have felt uncomfortable using

English in front of others.

4. Progress monitoring and feedback using various methods. Participants received feedback from the researcher through face-to-face sessions, and synchronous or asynchronous online sessions. Additionally, automated feedback was provided through the language platforms utilized, such as ReedWorks and LabXchange. Furthermore, peer feedback was incorporated into the process. These feedback mechanisms enabled participants to monitor their progress and identify areas in need of improvement.

The inherent features of the study are based on the researcher's reflections and observation of participants' reactions.

The participants welcomed at the early beginning of the intervention the idea of selecting the course topics based on their preferences and needs. Moreover, they enthusiastically supported the integration of technology within their course. They felt the close relation between their study (engineering)and the idea of being equipped with digital skills to use updated digital tools to enhance their language learning at the time of the course and hereafter. Using a digital platform (google classroom) for uploading materials and assignments accompanied by formative assessment, sharing ideas, receiving notifications, and giving feedback was highly influential.

The orientation stage represented the smooth transition towards active engagement with the material in face-to-face as well as in online instruction. At the beginning subscribing to the platform, using the assigned apps, doing, and uploading assignments were challenging. However, through face-to- face modeling by the instructor herself or presenting extra enhancement (e.g., tutorial videos, images, brief articles….) synchronously or asynchronously, things became more manageable.

Participants gradually demonstrated their active involvement in face-to-face meetings through participation in activities, discussion and reflection on both onsite and online assignments levels, the use of digital apps required, and feedback

received. Through virtual meetings, discussion focused on assignments uploaded, misconceptions, problems, and extra demonstration needed. Through the digital platform, posing questions, recommending more illustrative materials for different digital apps suggested were constantly available.

The participants showed an inclination towards working together in supporting others either with lower language level or with digital problems (e.g., subscribing to or downloading apps, managing assignments through assigned apps, or searching for similar apps with the same function as mobile phone cameras for recording instead of Flipgrid app). The continuous formative assessment tasks (onsite or online) in each session, and constant opportunities for discussion and reflection led to participants' increased language knowledge level and improved awareness and positive level in their abilities to use creatively various digital tools to extend their language learning.

The interpretation of the results with reference to the related literature

Through this integrative language teaching approach, the researcher enhanced the perception of students regarding the nature of technological dependency in the current global scenario. Owing to the age and inclination of the students towards technology, they exhibited a high degree of language knowledge and digital literacy during the period of the study. The integration of digital literacy in EFL instruction is considered essential due to their positive consequences as creativity, challenging, and giving positive impact, Ulfiana (2019). Online discussion and interaction amongst peers and between students and their teacher enable work at their own pace, though it was proven to be more effective when combined with face-to-face circle (McCord, 2015). EFL teachers should combine language skills to achieve effective L2 learning and increase learners' motivation to learn the language (Ahmad, 2014; Blanton, 1992 cited in Aykut, 2010:5 and Su 2007).

The relation of the present study's results to the results of other conducted studies:

1. **Results of similar research findings with those obtained by the present study.** Supporting the use of integrative language teaching skill instruction results from the way the separate

language skill teaching deprives learners of information immersion (e.g., linguistic, communicative, intellectual, etc.) which is very essential for developing both linguistic proficiency and communicative competence (Ahmad, 2014; Blanton, 1992 cited in Aykut, 2010:5 and Su 2007). Moreover, blended learning keeps students motivated as it may encourage students to spend more time on asynchronous activities because they can select when and where they will study leading to more ownership in their language learning, Marchalot et al. (2018) and Banditvilai (2016). Additionally, teachers can enhance students' flexibility and learning experience using asynchronous communication such as posting notes on the LMS, emailing, or blogging which will increase students' critical thinking skills knowledge and access to technology a pillar of public education policy, Nortvig et al. (2018).

2. **Results of different research findings with those obtained by the present study.** Opponents to integrative language teaching approach emphasize that discrete language skills can lend themselves to more focused teaching, intensive learning and much support from teachers and students as well. Additionally, the use of integrated language skill instruction requires skillful and well-trained teachers who can prepare appropriate materials as well as use them effectively. The use of the integrative language skills approach may not also be applicable in all teaching contexts such as developing countries (e.g., Ethiopia) due to lack of sufficient resources or even within classes with large students' numbers (Alaye & Tegegne, 2021). There are also some separate skills (e.g., intonation, stress patterns) need more focused attention especially from specific learners from specific language backgrounds (Arslan, 2010).

Blended learning teachers also found time management challenging because they had to stay at the same pace as other instructors to cover the same amount of material as the traditional class (Aurangzeb, 2018; Crompton et al., 2016; Greene & Hale, 2017and Powers et al., 2016). Other researchers point out some prevailing teachers' perception of digital literacies as shallow

ways to distract students with lack of awareness of the difference between education and edutainment, McCord (2015).

Limitations

The blended integrative language teaching approach is a promising approach for enhancing faculty of engineering students' English language knowledge and digital literacy skills. However, there are some limitations to this approach that should be considered:

1. It requires access to computers, tablets, and other devices, as well as reliable internet access. This can be a challenge for institutions that do not have the resources to invest in these technologies. This was resolved by depending on personal laptops and smart mobile phones.
2. It requires teachers to be familiar with both traditional and online teaching methods. This can be a challenge for teachers who are not familiar with technology or who are not comfortable using it in their teaching. This was tackled by using digital applications and platforms the researcher is familiar with and has already used in her teaching sessions.
3. It requires a significant commitment from students. Students need to be willing to learn in a blended environment and to take advantage of the online resources that are available. They also need to be self-motivated and disciplined enough to complete the online coursework. This can be a challenge for students who are not used to learning independently or who do not have the time or resources to commit to online learning. This was surmounted by providing clear and realistic expectations and specific guidelines, offering continuous support and guidance, providing engaging and interactive exercises, and offering opportunities for students' collaboration through peer and group work.

Despite these limitations, the blended integrative language teaching approach is a promising approach for enhancing faculty of engineering students' English language knowledge and digital literacy skills. With careful planning and implementation, this approach can be a valuable tool for helping students succeed in their studies and in their careers.

Conclusion

Professional development is a necessary component of implementing a new blended learning program to help teachers establish best practices for blended learning instruction for technology integration and should include detailed training on the technology tools (Crompton et ala., 2016). The professional development should also include pedagogical training to help teachers develop student goals related to blended learning to promote student success and motivation. Teachers' attitudes and beliefs towards implementing the integrative language teaching approach remain the most important guiding influence on instruction and facing challenging problems. Overall, technology can be used to support integrative language teaching instruction in a blended environment by providing learners with more opportunities for practice, feedback, and collaboration, as well as by facilitating the development of digital literacy skills.

Implications

1. Digital literacies provide opportunities to develop students' ability to critically consume information, to create. and share it across time and space, to cocreate and collaborate to solve problems, to persevere considering setbacks, and to maintain flexibility.
2. Educators must have students use technology in ways that are truly digital. Students should not simply have to find an image to insert into a slide deck; they should cite the source, remix the original image, and create their own images. They consider deeply what it means to have students engage in digital literacy that will serve them both in school and beyond.
3. Curriculum designers should look critically at pedagogy that would develop digital literacy in meaningful ways.
4. Using smartphones and/or social networks to send messages from the teacher to students or using wikis to fill in a preformatted page is a very common practice that will not engage students in substantive conversation or collaborative content development.
5. The development of digital literacy skills would lead to an increased level of language development.

Recommendations

1. Teachers should possess intrinsic motivation that stems from their genuine interest and enthusiasm to effectively integrate innovative technology in classrooms for language learning and literacy.
2. EFL/ESL teachers need to be encouraged to use free online resources, including hypertexts which often provide new ideas, teaching approaches and free webinars regarding using technology in language teaching to overcome the problems related to lack of training and professional development.
3. Curriculum planners must integrate digital literacies more clearly in the language curriculum.
4. Students' exposure to English should be maximized in class by increasing the student talking time and adopting interactive communicative teaching activities.
5. Teacher training contents should focus on both pedagogical and technological areas with teaching techniques that integrate language skills rather than teaching them discreetly.
6. Other forms of educational materials that adhere to critical digital literacies sense such as science fiction film can replace the formal teaching of a digital composition in a language classroom.
7. Institutional mechanisms should be available to monitor ICT enhanced classroom practices. These mechanisms should encourage teachers to integrate technology by providing necessary training and technical support. Along with training, there should be retraining and follow-up activities. In addition, there should be a mechanism to ascertain infrastructural requirements to integrate technology in teaching.

Suggestions for further research

1. The impact of the language curriculum on educator’s inclusion or exclusion of digital literacy in their classroom.
2. An analysis of the impact or influence of preservice education on teachers’ attitudes towards and familiarity with digital literacy
3. The pedagogical advantages of Computer-Assisted Language Learning (CALL) and the extensive array of technological applications utilized in language teaching worldwide.
4. This study may be replicated with a larger and more diverse

sample of non-EFL students from different higher institutions in Egypt.

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- https://edpuzzle.com/assignments/628dfe91243ea441136503cb/watch

برنامج مدمج قائم على المدخل التكاملي لتدريس اللغة الانجليزية لتنمية المعرفة اللغوية والمهارات الرقمية لدي طلاب المرحلة الجامعية غير المتخصصين

تم إجراء الدراسة الحالية للتعرف على أثر استخدام برنامج مدمج قائم على المدخل التكاملي لتدريس اللغة الانجليزية لتنمية المعرفة اللغوية والمهارات الرقمية لدي طلاب المرحلة الجامعية غير المتخصصين. ولقد تم استخدام المنهج شبة التجريبي (التصميم القبلي– البعدي) في الدراسة الحالية. وقد اشتملت عينة الدراسة على ستين (60) طالب وطالبة مقيدين بالمستوي الأول بكلية الهندسة–جامعة المنيا. وقد تم تقسيمهم عشوائيا الي مجموعتين متساويتين تامتين احداهما تجريبية (30) والأخرى ضابطة (30). ولقد تم تدريب الطلاب في المجموعة التجريبية على برنامج مدمج قائم على المدخل التكاملي لتدريس اللغة الإنجليزية من تصميم الباحثة بينما لم يتلق نظرائهم في المجموعة الضابطة مثل هذا التدريب حيث تلقوا التدريس وفقا للطريقة المعتادة. وقد اشتملت أدوات الدراسة على استبانة تحليل الاحتياجات للتراكيب النحوية، واستبانة تحليل الاحتياجات لمكونات الكتابية الأكاديمية، واستبانة تحليل الاحتياجات لموضوعات اللغة الإنجليزية، واستبانة تحليل الاحتياجات لمهارات المعرفة الرقمية، واختبار معرفة اللغة الإنجليزية، ومقياس لمهارات المعرفة الرقمية. وقد أظهرت النتائج تفوق طلاب المجموعة التجريبية على نظرائهم في المجموعة الضابطة في التطبيق البعدي لاختبار المعرفة اللغوية للغة الإنجليزية ومقياس المعرفة الرقمية. هذا وقد تم عرض مناقشة وتفسير النتائج والتوصيات والمقترحات لأبحاث مستقبلية.

الكلمات المفتاحية: برنامج مدمج، المدخل التكاملي، المعرفة اللغوية، مهارات المعرفة الرقمية.