

**برنامج قائم على التعلم المدمج لتنمية مهارات القرن الحادي والعشرين
باللغة الانجليزية لدى طلاب الدبلوم العام**

**A Blended Learning –Based Program to Develop General
Diploma Students' EFL 21st Century Skills**

إعداد

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مستخلص البحث

هدفت الدراسة الحالية إلى تنمية مهارات القرن الحادي والعشرين لدى طلاب الدبلوم العام شعبة اللغة الانجليزية باستخدام برنامج قائم على التعلم المدمج ، ولقد تكونت عينة الدراسة من (٦٠) طالباً من طلاب الدبلوم العام شعبة اللغة الانجليزية بكلية التربية جامعة الفيوم تم تقسيمهم الى مجموعتين تجريبية و ضابطة بكل مجموعة (٣٠) طالباً وقامت الباحثة بإعداد اختبار معرفي لمهارات القرن الحادي والعشرين وبطاقة ملاحظة وبرنامج قائم على التعلم المدمج وبعد تطبيق الاختبار المعرفي لمهارات القرن الحادي والعشرين وبطاقة الملاحظة قبلياً وبعد التدريس للمجموعة التجريبية من خلال البرنامج القائم على استخدام التعلم المدمج تم تطبيق ادوات الدراسة بعدياً. وكشفت النتائج عن حجم أثر كبير للبرنامج القائم على استخدام التعلم المدمج فى تنمية مهارات القرن الحادي والعشرين لدى أفراد العينة. وأوصت الدراسة باستخدام التعلم المدمج لتدريس مقررات اللغة الانجليزية لطلاب كلية التربية.

الكلمات المفتاحية:

التعلم المدمج- مهارات القرن الحادي والعشرين - طلاب الدبلوم العام

A Blended Learning –Based Program to Develop General Diploma Students' EFL 21st Century Skills

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Abstract

The present study aimed at investigating the effect of a blended learning -based program on developing general diploma students' EFL 21st century skills. Participants of the study were (N=60) general diploma student, Faculty of Education, Fayoum University. They were randomly assigned to two groups; experimental and control, 30 students each. The researcher prepared a 21st century skills cognitive test, an observation checklist and a blended learning -based program. After pre-administering the 21st-century skills cognitive test and the observation checklist, and teaching the experimental group using a blended learning-based program, the same instruments were post-administered to the participants. The results revealed that the use of the blended learning -based program had a large effect size on developing general diploma students' 21st century skills. It is recommended that blended learning should be used in teaching EFL courses for Faculty of Education students.

Keywords: Blended learning, EFL 21st century skills, general diploma students

Introduction

In today's era of Industry 4.0, significant transformations are occurring across all areas of life. The rapid advancement of technology and easy access to information create new expectations and requirements in various fields. While having a basic understanding of a subject was sufficient for learners in the previous century, the 21st century requires individuals to acquire new competencies, known as 21st-century skills, and integrate them into their daily lives to keep up with such rapid changes.

Information and communication technology can enhance education when applied appropriately. Developing innovative learning opportunities is vital for helping students master the diverse skills needed nowadays. Twenty-first century learning paradigm emphasizes students' ability to discover information from various sources, think analytically and collaborate in solving problems (Endangsari & Sapriya ,2020).

In the 21st century, the assumption that teachers are the only learning resources has become insufficient. It is essential to support education with a range of resources, such as printed materials, audio, visual, audiovisual content, and the internet. Adapting to the needs of this era requires more than just traditional classroom settings and fixed schedules. As a result, the limitations of space and time have contributed to the growth of blended learning, a teaching method that presents alternative and simpler delivery options (Koşar , 2016).

Twenty-first century skills can be developed through the use of blended learning (BL) as the researcher hypothesized. Recently, BL has become widely accepted among educators as it merges the advantages of diverse technologies, web-based tools, and learning theories, offering the best aspects of both online and traditional face-to-face learning.

□ (Singh , Steele & Singh, 2021). Initially, the concept of BL was established at the beginning of the 21st century since this terminology was substantially established in the early 20th century (Banditvilai,

2016). The increased attention to BL is elaborated by Bonk and Graham (2006), who highlight the changing roles of learners in the learning process.

1.2 Context of the problem

Out of the researcher's experience in teaching general diploma students, she noticed that they are not aware of 21st century skills and how to use them appropriately. For example, they lack the ability to collect information using various resources, evaluate the collected information and create solutions to different problems. They do not participate actively in class discussion or group work activities either. This is supported by several studies including Alhothali (2021) as well as Sarhan, El-Bashbishy and Qoura (2020). The former pointed out that student teachers lack the skills necessary to identify and use 21st-century competencies, which indicates an urgent need to enhance these skills in teacher training to promote a pedagogy aligned with 21st-century needs. It is also recommended conducting training courses and workshops on 21st century skills for in-service teachers. The latter confirmed that EFL teachers must improve their use of 21st century skills to ensure students' competence, positive outcomes, and mastery of these skills.

To document the problem a pilot study was conducted on 20 general diploma students at Faculty of Education. The pilot study consisted of a knowledge test where students were asked to answer 15 MCQs to measure their cognitive level of 21st century skills. The results of the pilot study revealed that the majority (70%) have a poor cognitive level of 21st century skills.

1.3 Statement of the problem

Despite the importance of 21st century skills to adapt to the challenging world, student teachers are not aware of these skills and how to use them. They lack the ability to think critically, solve problems, collaborate and communicate effectively. That is why the

present study attempted to help them develop their EFL 21st century skills through the use of the BL - based program.

1.4 Questions

The main question could be stated as follows:

What is the effect of a BL –based program on developing general diploma students' EFL 21st century skills?

From this main question the following sub-questions could emerge:

1. What is the effect of a BL –based program on developing general diploma students' overall EFL 21st century skills?
2. What is the effect of a BL – based program on developing general diploma students' each EFL 21st century skill, namely:(critical thinking, problem solving, collaboration and communication)?

1.5 Hypotheses

To achieve the aim of the present study, the following hypotheses were formulated:

1. There is a statistically significant difference at (0.05) between the experimental and the control groups' mean scores in overall 21st century skills knowledge post test in favor of the experimental group.
2. There is a statistically significant difference at (0.05) between the experimental and the control groups' mean scores in each 21st century skill knowledge post test in favor of the experimental group.
3. There is a statistically significant difference at (0.05) between the experimental and the control groups' mean scores in the post administration of the observation checklist of general diploma students' performance of the 21st century skills in favor of the experimental group.

1.6 Delimitations

The present study was delimited to:

- EFL general diploma students (N=60) , Faculty of Education, Fayoum University.
- Some 21st century skills namely:
 - a) Critical thinking including (using different sources to collect information, comparing and contrasting, evaluating and summarizing the collected information and drawing a conclusion)
 - b) Problem solving containing (identifying and defining the problem, analyzing the causes of the problem, collecting information related to the problem, creating different solutions to the problem, applying the solution and evaluating or reflecting on the impact of the implementation of the solution)
 - c) Collaboration comprising(working in pairs to do an activity, doing a certain task in groups, providing colleagues with feedback, participating actively in cooperative activities, presenting the group work to the teacher and respecting the contributions of colleagues).
 - d) Communication encompassing (presenting information orally, listening carefully to the teacher or colleagues, participating in classroom discussion, preparing written products, using non verbal communication effectively and conveying ideas using media).
- First semester of the academic year 2023-2024.

1.7 Aim

The present study aimed at investigating the effect of a BL - based program on developing general diploma students' EFL 21st century skills.

1.8 Significance

The present study might help:

- general diploma students to develop their awareness of EFL 21st century skills and try to improve them.
- direct faculty members' attention to the importance and the use of BL .
- EFL researchers have new avenues of research areas.

1.9 Terminology

Blended learning (BL)

The researcher adopted the definition of Stein and Graham (2014:164) in the present study. They defined BL as" a combination of onsite (i.e. face-to-face) with online experiences to produce effective, efficient and flexible learning".

Twenty-first Century Skills

The researcher used the term 21st century skills in the present study to refer to general diploma students' ability to think critically, solve problems, collaborate and communicate effectively.

2. Review of literature

The education system is one of the systems that are most affected by the constant changes and progresses in science and technology. In the 21st century, education has moved beyond simply preparing individuals for a static and predictable world. The goals of education in this knowledge-driven era include equipping people to thrive in a dynamic and unpredictable environment, cultivating creativity, empowering individual expression and unique talents, and preparing innovative thinkers. Thus, the greatest function of education in the 21st century is to prepare students for the challenges they may encounter in the future (Astuti, Aziz , Sumarti & Bharati, 2019).

Rapidly changing technology of the 21st century should be integrated into learning environments. This is because learners can

observe the modeling of these skills by their teachers and can practice them inside the class. While mastering 21st century skills is one of the most important aims of the educational system, teachers face new and significant challenges in figuring out which activities should be prepared for students to acquire these skills and arranging the classroom environment accordingly (Agaogl & Demir, 2020). Therefore, training and preparing teachers in both the acquisition and transmission of 21st century skills is equally crucial (Kim, Raza & Seidman, 2019).

2.1 Nature of 21st century skills

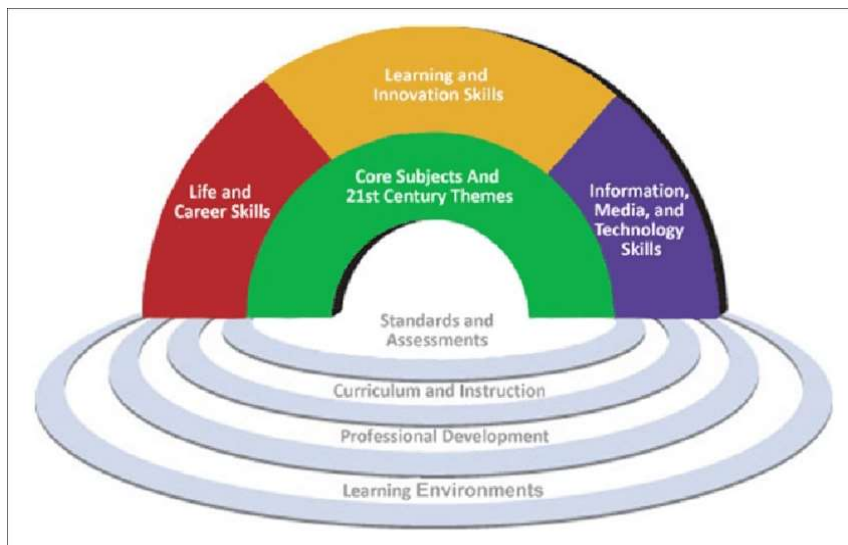
Twenty-first century skills are explained in different interconnected headings. Partnership for 21st Century Skills (2015) identifies three main categories; learning and innovation skills, information, media and technology skills and life and career skills. Learning and innovation skills include creativity, critical thinking, communication and collaboration skills, which are also known as “4C Skills” due to the fact that all these words start with a “C” in English. Through the enhancement of critical thinking skills, it will be possible to synthesize the obtained information accurately and ethically. Via the enhancement of creativity skills, it will be possible to interpret synthesized information and transform it into innovative products. Developing collaboration skills enables students to work together and take actions respecting others’ needs and perspectives. Enhancing communication skills provides learners with the chance to use oral, written and nonverbal channels .

Life and career skills enable individuals to coexist peacefully, think of differences as “benefits”, not “problems”, resist competing systems and institutions and adapt to various cultures, languages and living environments. Such skills empower individuals to improve

themselves, adapt to the environments they are living in and create better living and working environments.

Information, media and technology skills are essential to live in the present era enriched by media and technology. The ability to efficiently and accurately access information through various channels, combined with existence of rapidly changing technology, requires individuals to effectively analyze, synthesize, and evaluate information using media and technology.

Figure (1) Partnership for 21st Century Skills



Source: Partnership (2015)

Cigerci (2020) divided 21st century skills into four main categories including cognitive skills, self-efficacy skills, socio-cultural skills and technology skills. Cognitive skills consist of creativity, innovation, critical thinking and problem solving. Self-efficacy skills include recognizing the sub-skills associated with cognitive skills and having the intrinsic motivation to utilize them. Socio-cultural skills include collaboration, communication and working effectively with diverse groups. Technology skills address information, media and technology literacy.

Maltepe and Bayrakdar (2021) stated that individuals with 21st century skills are expected to be able to use higher order thinking skills such as critical and creative thinking, problem solving and decision making effectively. Also, they should be able to keep up with technological changes and have advanced communication skills in mother tongue and foreign languages. In other words, they should have digital competence and be socially compatible, cooperative, and flexible.

Importance of 21st century skills

Twenty-first century skills are considered one of the most important skill sets that current generations should work on and develop. These skills help them to refine their outcomes, prepare them for the job market, and develop their lives. Also, they help students benefit from the current explosion of information and knowledge enabling them to examine , analyze and verify information (Alsana, 2021).

In addition, 21st century skills empower students to gain access to updated knowledge and information. This enables them to adapt to and work in a rapidly changing world characterized by technological advancement and increased knowledge The integrative personality can be refined by developing skills such as negotiation, utilizing new technologies, and employing creative and critical thinking to solve problems (Abed Moneim 2020; Hridi, 2019). Thus, mastering 21st century skills is not a choice rather a must nowadays.

Characteristics of 21st century teachers

The 21st century teachers should have the spirit of creativity. They should be able to select, develop, and incorporate novel, unconventional, and innovative methods of teaching. They should also be able to use higher order thinking skills to plan, teach, and reflect on their teaching practices. Moreover, they should be able to successfully use components of literacy (reading, writing, speaking, and listening) and to work productively and equitably. In addition,

they should be capable of managing, applying, analyzing, and assessing digital information, media, and technological tools. (Corbisiero-Drakos, Reeder, Ricciardi, Zacharia & Harnett, 2021).

In 21st century, pre-service and in-service teachers should have intellectual and professional competencies. They should have 1) flexible thinking abilities to think of different scenarios, 2) interpersonal and communication skills to argue and value others in diverse educational settings and 3) global skills to adjust to others with different cultures, values and backgrounds (Astuti et al., 2019).

Developing 21st century skills

Rapid changes in the world challenge the nature of the teaching process. Being the leading actors in developing students' 21st century skills, teachers initially need to be educated for these skills in order to develop their own critical, creative, and collaborative skills and to adapt technology to their classes appropriately (Çakır, & Güngör, 2017). Also, teachers need skills for designing and managing classroom activities efficiently, communicating well, and evaluating and improving their teaching practices constantly (Alhothali, 2021). Moreover, they need to work on modifying and developing curricula, instructional materials used, and evaluation techniques to be suitable for the skills of the 21st century (Alsana, 2021).

In response to the rapid and constant technological changes, teachers must expand their focus beyond just content knowledge and cognitive skills. They are required to implement diverse strategies and methods to fulfill the demands of 21st-century skills (Ciğerci, 2020). The perspective of the teacher's roles and responsibilities should be shifted from merely transferring information to students to practicing leadership, investigation, guidance, and counseling. Also, they should encourage their students to think critically, be creative, innovate, and collaborate with a variety of groups (Alhothali, 2021).

Studies related to 21st century skills

Due to the importance of integrating 21st century skills into teacher's preparation programs, several studies investigated the pre service and in-service teachers' self-awareness, attitude and application of these skills. Some of these studies are:

Alahmad, Stamenkovska and Györi (2021) examined the efficiency of a model aimed at teaching 21st century skills to pre-service teachers at Damascus university. Participants were thirty-four teacher educators and 106 student teachers. Two survey questionnaires were used to collect data. Results revealed that while the model pedagogical training was effective in fostering cognitive skills, it was average in terms of problem-solving and information literacy skills. Also, it performed poorly in fostering communication skills. The primary drawback of the model is the lack of a teacher training framework that equally values the practical application of these skills.

Alsana (2021) investigated the degree of 21st century skills application among university students in Saudi Arabia. Participants consisted of 576 students, including both genders, from various universities in Saudi Arabia. A questionnaire was used to collect data. Results showed that the skills of the 21st century were available and applicable in the universities curricula. Scientific discipline students apply these skills to a higher degree in comparison to literary discipline students. Also, there were no significant differences between male and female participants in terms of 21st-century skills, with the exception of flexibility, where males performed better.

Baran-Łucarz and Klimas (2020) examined EFL student teachers' opinions, beliefs and their self-awareness of 21st century skills, particularly the 4Cs. Participants were 53 English student teachers from the Institute of English Studies in Poland. A questionnaire was used to collect data. Results showed that while most participants had a limited grasp of 21st-century skills, they generally held positive

views about incorporating them into foreign language teaching. It was concluded that student teachers' awareness of the use of 21st century skills should be raised in EFL classrooms.

Şahin and Han (2020) investigated EFL in-service teachers' level of awareness and attitudes towards 21st century skills. Participants of the study were 56 EFL teachers from various schools. A questionnaire was used to collect data. Results revealed that EFL teachers had positive attitudes towards 21st century skills. They also expressed positive views on technology role in their courses, considering technological tools and materials effective for both teaching and daily life.

Ekinci (2019) investigated the perceptions of EFL instructors about the use and teaching of 21st century skills. Participants were 22 EFL instructors. A survey for measuring 21st century skills teaching and a semi structured-interview were used to collect data. The results confirmed that the EFL instructors recognized the significance of 21st century skills and incorporated them into their teaching practices whenever possible.

Çakır and Güngör (2017) investigated the evaluation of 3rd and 4th year pre-service teachers of the current practices in teaching English to young learners in light of 21st century teacher qualifications. Participants were 283 3rd and 4th year pre-service teachers. Semi-structured interviewed questions were used to collect data. Results indicated that pre-service teachers' specific learning needs focused mostly on technology use, organizational abilities, and the characteristics of young learners. Pre-service teachers are not adequately prepared for teacher credentials in the twenty-first century by the current curriculum.

Boe (2013) examined the extent to which 21st-century skills were integrated into the academic programs of Church-Related University. Participants were 682 students and 76 faculty members. A survey of 21st century practices including eight 21st century skills was used to collect data. Results showed that 21st century skills were

taught across all eight domains examined. Technology integration and global connections were the most widely implemented skills among learners as well as faculty members. Students also showed significant engagement in critical thinking and self-direction, whereas collaboration, creativity, innovation skills, and local connections were implemented with less consistency.

Out of the previous disposition, the researcher attempted to use BL as one of the methods through which 21st century skills can be developed. This instructional design relies, in one part, on online learning and the other part is face to face instruction.

2.2 Blended learning (BL)

BL is sometimes called hybrid or mixed-mode learning. These instructional designs are used interchangeably by researchers for the courses that combine two kinds of instruction together (Cleveland-Innes & Wilton , 2018). However, BL and hybrid learning are different in their purposes. BL focuses on enhancing the educational experience through a specific combination of methods, while hybrid learning prioritizes flexibility and allows students to choose how to engage, adapting to their unique needs and circumstances (Gulnaz, Althomali & Alzeer, 2020).

Nature of BL

Blended learning (BL) is a teaching model that incorporates multiple delivery modes in which teachers use various modes and strategies to enhance the learning experience (Balci, 2017). It is a combination of onsite (i.e. face-to-face) and online experiences to produce effective, efficient and flexible learning (Stein & Graham,2014).

BL is also a blend of delivery media (such as the internet, lectures, PowerPoint presentations, and textbooks), instructional modalities (such as in-person, self-paced, and online learning), instructional methods (such as in-person and technology-based sessions), and web-based technologies (such as wikis, chat rooms,

blogs, online courses, and emails). Such modes and strategies are integrated in a manner that addresses particular learning goals, course material, the teacher's experience and teaching style, and the characteristics of the learners (Dziuban, Hartman and Moskal , 2005).

A key concept of BL is that it goes beyond simply adding technology to a traditional course; it is an integrated approach that combines the strengths of both face-to-face and online learning. In a quality BL experience, both in-person and online content and activities are interconnected and aimed at the same learning outcomes. These different learning experiences support each other and are designed to run in parallel (Cleveland-Innes & Wilton, 2018). Delialioglu and Yildirim (2008) stated that a thoughtfully designed and effectively implemented BL can enable students to access information more quickly, use multimedia resources, and receive better support for understanding the content.

Importance of BL

Sari, Rahayu and Apriliandari (2018) stated that BL combines the positive sides of traditional face to face model with improved technology use to enhance the teaching- learning process. BL is an alternative solution for overcoming the weaknesses of both in-person and online learning. It creates efficient learning sequences to boost student productivity and encourage more discussion or review of information outside the classroom (Faraniza, 2021). Thus, it is expected that students who complete a course using BL outperform their classmates who may have access to only one form of instruction. This is confirmed by two studies dealt with in the following section:

Sheet (2019) investigated the effectiveness of using BL in developing university students' writing performance. Results revealed that employing a blended teaching method can create a desirable condition to enhance students' writing performance. As for

the second study, it was conducted by Ghazizadeh and Fatemipour (2017) who investigated the effect of BL on the reading proficiency of Iranian EFL learners. Results indicated that BL had a significant effect on improving reading proficiency of Iranian EFL learners. It can be integrated into English language classes to enhance the learning process, particularly in reading skills.

Balancing regular instructional strategies with technology leads to more engaging and authentic experiences that facilitate developing 21st century skills (Kieschnick, 2017). This is confirmed by Ur Rahman (2021) who investigated the attitudes and perceptions of EFL learners towards the use of BL as a step towards 21st century classrooms. Results indicated that BL had a positive impact on developing EFL learners' 21st century skills and made learning more interesting.

Also, BL, as a method, attracts most students and teachers because it provides a flexible, anywhere /anytime, learning environment which fits the 21st century teaching-learning area (Rahim, 2019). In BL, students are not required to be physically together in one place but may be connected digitally through online communities. Students enrolled in the BL course may attend a regular classroom session with a teacher while simultaneously completing the course's online components independently, outside the class, using an online learning platform (Cleveland-Innes & Wilton, 2018).

Moreover, BL promotes learners' autonomy and motivation to learn. It enables them to take responsibility for their own learning through maximizing their opportunities to choose the appropriate place and time for learning (Kosar, 2016). It promotes learners' motivation and interest in the language learning process through offering various and exciting learning activities using the web and other technology platforms. Learners can enjoy using technology and learn English and therefore associate the two as a positive, more desirable process (Ghazizadeh & Fatemipour, 2017; Sari et al., 2018).

In addition, BL can offer opportunities and methods to help students become more self-reliant by expanding access to the necessary training and learning materials. Focusing on the range of needs that will keep students in their own "learning zone," each student can maximize learning by investigating material at various levels of learning absorption. (Faraniza, 2021). Thus, BL personalizes the learning process. Teachers can adapt BL to meet the diverse needs of all students (Hensely, 2020).

Furthermore, BL provides an engaging learning environment that provokes student- teacher interaction by combining face-to-face medium of instruction with online learning. Teachers need to carefully plan, design instructional strategies, and incorporate elements of both onsite and online educational pedagogies (Singh et al., 2021). At school, teachers can build students' interaction with face to face discussion, while they can use online devices such as discussion forums, virtual classrooms and virtual conferencing platforms to engage students in learning activities from anywhere, at any time. Meaningful interaction between teachers and students, and among students, is crucial for fostering communication skills and enhancing practical learning experiences in the classroom (Sari et al., 2018).

Finally, BL empowers teachers in numerous ways by improving their teaching conditions, providing access to global resources that cater to students' diverse knowledge levels and interests, and creating collaborative and professional development opportunities (Ju & Mei, 2018). BL empowers teachers to use technology effectively, build meaningful learning interactions with student, assess progress, and prepare students for success (Faraniza, 2021). The integration of online assessment and communication tools also deepens teachers' awareness of learning styles, enabling them to foster interactive and collaborative learning experiences beyond the classroom. (Rubio &

Thoms , 2014). So, many teachers express positive attitudes towards utilizing BL. This is confirmed by a number of studies as follows:

Hensley (2020) examined teachers' perceptions of BL as an instructional method for catering to the diverse needs of 21st-century learners. Results revealed that teachers had positive perceptions of BL. This is because BL enhances teaching practices through the meaningful use of technology, personalizes learning, engages and empowers learners, and supports professional development.

Kosar (2016) examined EFL Turkish university instructors' perceptions of BLgenerally held positive views of the blended learning (BL) approach, but also raised several challenges concerning its implementation.

Models of BL

According to Cleveland-Innes and Wilton (2018), BL can be divided into three main models; blended presentation and interaction , blended block and fully online. The blended presentation and interaction model prioritizes classroom engagement, supplemented by online exercises completed outside of class. The flipped classroom is a common example of this model in which students independently review podcasts or videos before participating in collaborative learning activities like tutorials or seminars in the classroom.

The blended block model structures learning into sequences or "blocks" that integrate both in-person and online study, typically taking into account both pedagogical goals and practical limitations. Even a fully online model can be considered blended if it combines synchronous learning (e.g., online tutorials) with asynchronous activities (e.g., discussion forums).

Figure (2) Models of BL



Source: Cleveland-Innes & Wilton (2018)

BL and 21st century skills

BL is considered one of the most important educational advances due to its potential to develop students' 21st century skills to live in and deal with a challenging world. Endangsari and Sapriya (2020) pointed out that BL helps learners to develop communication, collaboration, critical thinking and creativity skills. Students are urged to work with their peers on problem solving and information gap activities. They also work collaboratively in activities that support both computer-mediated and face-to-face communication. BL provides learners with the opportunity to learn and develop critical thinking and creativity through numerous related materials available on the internet (Faraniza, 2021).

Also, it provides learners with practical experience with technology-supported skills that are crucial for success in the 21st century. BL provides learners with interactive multimedia learning. It empowers students with data and resources, enabling them to stay focused on learning objectives and progress in ways previously unattainable. By leveraging technology and interactive learning designs, educators can identify the needs of each student, fostering self-regulation and enriching the learning experience to meet the challenges of the 21st century (Faraniza, 2021).

Moreover, BL offers students a variety of beneficial skills that can be directly applied to solve real-world problems. These include research skills, self-directed learning abilities, self-engagement capabilities, and a sense of responsibility (Beer, 2021). Developing such valuable skills equips learners with the competencies needed to

solve real-world problems and live successfully in the rapidly changing world.

BL and 21st century teachers

In 21st century, teachers should have special competencies to make learning relevant, interesting, effective and student-centered. A key competency for teachers is the ability to use information and technology to create and develop engaging and effective learning activities. Teachers should be able to design interesting and meaningful activities using diverse resources, including technology, and extend teaching and learning beyond the traditional classroom. Therefore, teachers should have the appropriate knowledge, attitudes, and skills to design learning activities that integrate information and communication technology.

(Endangsari & Sapriya,2020).

The concept of BL can be introduced to EFL teachers in teacher training or in-service courses to improve their teaching skills and stay current with new technology. These courses should provide methods and concepts that support the use of BL as well as techniques and sufficient training in using the internet, social media, and various software programs. This familiarizes teachers with the benefits of incorporating BL into English classes (Ghazizadeh & Fatemipour,2017). Being familiar with online learning approaches, e-learning tools and innovative technology, teachers can effectively use BL to facilitate the learning-teaching process (Singh et al., 2021).

Teachers utilizing BL concentrate on how they can improve traditional face-to-face teaching methods using technology. Integrating technology into instruction can be a challenge for teachers who mistakenly believe that they must replace their current traditional practices with technology. However, effective instructional practices should strike a balance between traditional instructional strategies and technology. Such balance helps engage students in authentic learning experiences that focus on exploration,

creativity, critical thinking, communication, and collaboration keeping up with the demands of 21st century skills (Kieschnick, 2017). This is confirmed by two studies to the researcher's knowledge. They are as follows:

Hadiyanto, Failasofah, Armiwati, Abrar and Thabran (2021) investigated the impact of BL on optimizing prospective teachers' 21st century skills. Results showed that students in the blended learning (BL) class demonstrated significantly higher overall 21st-century skills compared to their peers in the regular class. They were also able to solve problems, ask questions, provide feedback, discuss ideas, and interact using ICT. Moreover, the practice of soft and hard skills increased and had a significant impact on academic achievement and other expected abilities.

Sarhan, et al. (2020) explored the effectiveness of a proposed BL program for developing some 21st century skills used by EFL in-service teachers. The experimental group demonstrated superior 21st century skills knowledge and performance compared to the control group, as evidenced by their outperformance on both the post-administration EFL teachers' knowledge test and the observation checklist. They showed that the proposed program significantly improved EFL in-service teachers' use of the targeted skills.

2.3 BL Challenges

There are some challenges of BL encountered by teachers. One of the main challenges of BL is designing course content as it is distinct from simply combining in-person and online elements. The course should be designed with the pedagogic principles that incorporate technology to enhance meaningful learning (Listiana & Jaharadak, 2019). Also, novice teachers represent another challenge as teaching blended or online courses requires knowledge of online teaching strategies and expertise in web-based tools. Training and professional development are key to helping teachers deliver education that meets 21st-century needs (Singh et al., 2021).

Cleveland-Innes and Wilton (2018) pointed out that there are some challenges of BL. First, shortage of technological infrastructure including hardware, software and internet access with appropriate bandwidth may create a challenge. Technology tools must be available, user-friendly, reliable, up-to-date and dependable to facilitate meaningful learning experiences. Second, limited IT knowledge and skills among learners can restrict both initial access and the quality of learning outcomes. Third, the absence of self-pacing and self-direction poses a major challenge. Since online learning requires learner autonomy and self-management, students with diverse educational backgrounds and varying learning competencies may struggle. Therefore, fostering independence and self-regulation should be a central component of BL design.

3. Method

A. Participants

Participants were sixty students selected from general diploma Faculty of Education, Fayoum University, Egypt. They were assigned to two groups; experimental and control, 30 students each.

B. Design

The quasi experimental with experimental/control pre/posttest design was adopted.

C. Instruments and materials

To achieve the aim of the present study, the following instruments and materials were prepared and used by the researcher:

- 1) a 21st century skills checklist
- 2) a 21st century skills knowledge test
- 3) an observation checklist
- 4) a BL –based program.

3.1 The 21st century skills checklist

3.1.1 Aim

The 21st century skills checklist aimed at identifying the required and suitable skills for participants. It was developed in the light of a

systematic review of literature and previous studies related to 21st century skills.

3.1.2 Validity

To estimate checklist validity, a panel of EFL jury members (N=7) (see appendix A) were required to evaluate it in terms of clarity and suitability for the required skills and students' level. The first version included eight main skills; critical thinking, problem solving, collaboration, communication, creativity, use of media, flexibility and adaptability and leadership. They were also required to arrange the skills according to the relative weight of each skill. The rational was to choose the most important ones due to time limitation. They arranged them as follows:

1. Critical thinking 95%
2. Problem solving 93%
3. Collaboration 91%
4. Communication 90%
5. Creativity 88%
6. Use of media 85%
7. Flexibility and adaptability 80%
8. Leadership 80%

The final version of the checklist was prepared (see appendix B).

3.2 The 21st century skills knowledge pre-post test

The 21st century skills knowledge test was prepared , after making the 21st century skills checklist and validating it by a panel of jury members,.

3.2.1 Aim

The aim of the test was to measure the participants' cognitive level in 21st century skills before and after the intervention. It was administered as both a pre-test and post-test. The pre-test aimed to assess participants' current cognitive level in 21st-century skills,

while the post-test investigated the effect of the BL-based program on developing the experimental group's cognitive level in these skills.

3.2.2 Description

The test consisted of 40 multiple - choice questions that require students to choose the correct answer from 3 choices. These items covered the four skills; critical thinking, problem solving, collaboration and communication. Ten items are assigned to measure each skill (See Appendix C).

3.2.3 Validity

To ensure validity, the test was submitted to a panel of EFL jurors for evaluation. They evaluated the clarity of the instructions and the relevance of the content to the students' level and the targeted 21st-century skills. Their feedback confirmed that the instructions were clear and appropriate, and that the content effectively measured the intended skills, establishing the test validity.

3.2.4 Reliability

Using the split-half method, the test demonstrated a reliability coefficient of (0.80), indicating a high level of reliability.

3.2.5 Scoring

As the test included 40 items, each item is given a mark. Thus, the total mark of the test is 40.

3.2.6 Piloting

Piloting aimed to evaluate the test clarity, readability, and timing. Fifteen general diploma students other than those of the main treatment participated in piloting. The test time was 40 minutes (+5 for test directions). This duration was established by computing the time taken by each student divided by the number of the students (15).

$$\frac{600}{15} = 40 + 5(\text{test directions}) = 45 \text{ minutes}$$

15

3.4 The observation checklist of 21st century skills

3.4.1 Aim

The observation checklist aimed at measuring participants' performance of the 21st century skills before and after the treatment.

3.4.2 Description

The observation checklist consisted of (37) items comprising the four skills; critical thinking (10 items), problem solving (9 items), collaboration (8 items) and communication (10 items). It includes the most important performance indicators related to each skill. Participants were asked to tick (✓) in the suitable place which best indicates how often they do it on a 3-point Likert-scale, ranging from distinguished, satisfactory, to unacceptable (3-1) points, respectively (See Appendix D).

3.4.3 Validity

To establish validity, the observation checklist was submitted to a panel EFL Jurors who were required to judge the checklist in terms of the following criteria: a) suitability of indicators to the skill which they belong to, b) accuracy of the language and c) measurability or observability of these indicators. They indicated that it requires making minor adjustments to be valid. The suggested modifications were:

- a- changing “Encouraging team members to persist in difficult activities” into “Encouraging group members to persist in difficult activities”
- b- changing “Conveying their ideas using technology (e.g., the program site)” into “Conveying their ideas using various media”.

3.4.4-Reliability

The reliability of the observation checklist was calculated using the test-retest method. It was first administered to a group of 15 general diploma students and re-administered to the same group two weeks later. The Pearson correlation coefficient between the two administrations was 0.80 at the 0.01 significance level, indicating a high degree of reliability

3.5 The Program based on BL (See Appendix E)

3.5.1 Aim and objectives of the program

The program aimed at helping general diploma students develop the 21st century skills through using BL .

Objectives

By the end of the sessions, students are expected to be able to:

- identify 21st century skills appropriately
- compare and contrast information accurately
- collect information using different sources
- evaluate the collected information accurately
- develop clear evidence
- refute the alternative point of view
- create unusual solutions to the problem
- apply the best solution
- evaluate the effect of the implementation of the solution
- work in pairs or small groups to complete a task
- give feedback to peers correctly
- convey ideas using media correctly
- show an oral presentation to the class fluently
- use non verbal clues effectively
- communicate using the written language

3.5.2 Content

The researcher selected some topics from Teaching Strategies(1) course to be taught to general diploma students in the academic year 2023/2024 using BL . The sessions were shown in the following table.

Table (1) Sessions of the program

Session	Title
1	An Introductory session of the program
2	Critical thinking skills (1)

3	Thinking maps
4	Debating technique
5	Problem solving skills (2)
6	Classroom problems
7	Challenges of diversity
8	Collaboration skills (3)
9	Cooperative learning
10	Co- teaching
11	Communication skills (4)
12	Teaching speaking
13	Teaching writing
14	Non - verbal communication

Table (1) shows fourteen sessions devoted to developing general diploma students' 21st century skills. The instructional sessions were preceded by a pre-test session and concluded with a post-test session, totaling 16 sessions overall.

3.5.3 Activities and techniques

Each session included a mix of face-to-face and online activities involving individual, pair, and group work. Various techniques were used to help students to develop 21st century skills. For example, graphic organizer and debating techniques were used to help students develop critical thinking skills. Students were encouraged to apply problem solving steps to solve classroom problems. In addition, cooperative learning activities and flipped classroom were used to help students develop collaboration and communication skills respectively.

3.5.4 Evaluation

The researcher incorporated both formative and summative evaluation. The formative evaluation comprised ongoing questions and exercises during and after the sessions, and the summative

evaluation was conducted through administering the post-test at the end of the sessions.

3.5.5 Experimental procedures

- **Pre-testing**

A pre-test measuring 21st century skills was conducted on November 1st to determine the participants' initial skill levels before the intervention.

Intervention

A total of fourteen sessions were conducted to develop the experimental group's 21st century skills through blended learning (BL). These sessions were held from November 4, 2023, to December 23, 2023. In the initial session, the researcher focused on introducing the concept, significance, and models of BL. Also, she explained 21st century skills and how they were going to develop 21st century skills through using BL. She showed how they can access the link of the program, log-on and go through the elements of the program. At the beginning of the treatment, the researcher noticed that some students could not access the link of the program as they did not have an internet link on their mobile phones. So, she allowed them to use the Faculty Wi-Fi.

Four introductory sessions were conducted face to face to explain the theoretical part of the four specified 21st century skills and provide students with modeling. Each introductory session was followed by two sessions to enable students to practice the specified sub-skills except the last introductory session, it was followed by three sessions. Students were encouraged to do face to face and online activities to practice these skills either in pairs, groups or individually.

The researcher noticed that by the end of sessions, students used 21st century skills easily and effectively. Also, they became more engaged, interested in online sessions that they resist at the beginning of the treatment and had positive attitudes towards BL program.

- **Post-testing**

The researcher evaluated students' 21st century skills at the end of the intervention. This occurred on December 26, 2023, when the 21st century skills post-knowledge test and the observation checklist and were administered with the aim of investigating the effect of the BL- based program on developing the experimental group students' 21st century skills.

The collected data were analyzed statistically, and the results along with the discussion are presented in the following section.

4. Results of the study

Data analysis was conducted through SPSS (version 26), and the findings are discussed in light of the study hypotheses.

□ 4.1 The first hypothesis

The first hypothesis stated that "There is a statistically significant difference at (0.05) between the experimental and the control groups' mean scores in overall 21st century skills knowledge post test in favor of the experimental group".

Table (2) Comparing the experimental and the control groups' performance on of overall 21st century skills knowledge test

Groups	N	Mean	S.D	t- Value	D.F	Sig.	Effect size
Experimental	30	23.47	1.33	-37.97	58	0.05	0.96
Control	30	11.42	1.02				

It is clear from table (2) that T – value is significant at (.05) level . Also, the effect size is (0.96.) proving a large effect size. Thus, the first hypothesis of the study was supported.

4.2 The second hypothesis

The second hypothesis stated that "There is a statistically significant difference at (0.05) between the experimental and the control groups'

mean scores in each 21st century skill knowledge post test in favor of the experimental group ".

Table (3) Comparing the experimental and the control groups' performance on each 21st century skill knowledge test

21 st century skills	Groups	N	M	S. D	t- Value	D. F	Sig .	Effe ct size
Critical thinking	Experimen tal	30	5.40	0.72	-14.53	58	0.05	0.91
	Control	30	2.77	0.63				
Problem solving	Experimen tal	30	5.77	0.72	-19.94	58	0.05	0.85
	Control	30	3.03	0.18				
Collaboratio n	Experimen tal	30	6.47	0.73	-19.15	58	0.05	0.92
	Control	30	2.90	0.71				
Communicat ion	Experimen tal	30	5.84	0.91	-13.34	58	0.05	0.91
	Control	30	3.13	0.62				

Table (3) shows that all values of (T) are statistically significant at (0.05) level. Thus, the second hypothesis of the study was supported. Thus, the second hypothesis of the study was accepted.

4.3 The third hypothesis

The third hypothesis stated that "There is a statistically significant difference at (0.05) between the experimental and the control groups' mean scores on the post administration of the observation

checklist of general diploma students' performance of the 21st century skills in favor of the experimental group".

Table (4) Comparing the experimental and the control groups' performance on the observation checklist

Groups	N	Mean	S.D	t- Value	D. F	Sig.
Experimental	30	23.47	1.33	- 28.59	58	0.05
Control	30	10.70	2.21			

Table (4) shows that the experimental group students' post observation scores are significantly higher than the control group ones on observation checklist. T – value is significant at (0.05) level. Thus, the third hypothesis of the study was accepted.

5. Discussion of results

The present study aimed at developing general diploma students' 21st century skills using a BL –based program. The results of the study revealed that the BL –based program had a large effect on developing the experimental group students' 21st century skills. This could be attributed to the teaching procedures and various techniques used in face to face and online sessions.

The use of various strategies, techniques and activities helped students develop 21st century skills. For instance, a Venn diagram and the graphic organizer (I read, I think, therefore) were used to develop students' critical thinking skills motivating them to compare and contrast between thinking maps, evaluate these maps and draw a conclusion. Also, the researcher used debating technique where students were asked to establish a claim, find clear evidence to support their claim and refute the counterargument. This technique helped them to think critically and take decisions whether they are for or against conventional or non –conventional teaching methods.

Through applying problem solving steps, students could find various creative solutions to classroom problems such as dealing with disruptive learners and challenges of diversity based on logical evidence. They were encouraged to apply the best solution and evaluate the effect of its implementation in teaching practice course that was under the researcher's supervision. They provided the researcher with detailed reports confirming the positive effect of the suggested solutions.

Besides, the use of cooperative learning techniques such as jigsaw and information gap activities encouraged students to develop collaboration skills. Students were encouraged to work in groups to read a text using jigsaw technique. The researcher also encouraged them to work in groups to create a lesson plan. Each member of the group was responsible for preparing an element of the lesson plan. Then, all elements were collected, revised and rewritten to present the group work to the researcher. Having the students do a certain task individually, then collaborate to give their colleagues feedback and correct their mistakes helped them develop collaboration skills.

Moreover , the use of flipped classroom in which the researcher sent files to students about some topics before the class time to prepare oral presentations or written essays and present them in front of the class motivated students to develop communication skills. Students were also encouraged to use non-verbal communication represented by eye contact, facial expressions, gestures and body movements.

In addition, the BL –based program provided students with the opportunity to direct their own learning taking more responsibility for their own learning. They were encouraged to collect data from different resources, analyze, compare and contrast and evaluate the collected data to find solutions for various problems.

Furthermore, the use of online activities and evaluation encouraged students to communicate and interact with their colleagues and the researcher using media and technology, a vital skill required in 21st

century. Students were asked to work in pairs and groups online to do some activities monitored by the researcher. They were also asked to submit the answers to evaluation questions online. Thus, the BL – based program provided them with the opportunity to develop their abilities to use technology in the teaching -learning process.

Some of students' comments were:

- I enjoyed doing online activities.
- I enjoyed expressing my opinion and refuting the alternative point of view.
- I accepted receiving feedback from my classmates.
- I was proud to present my group's work in front of the class.
- I did my best to help my group members to fulfill the required task.

Finally, the study results were consistent with those of Hadiyanto et al. (2021) that confirmed that the use BL optimized prospective teachers' 21st century skills. The study results were also in line with those of Sarhan et al. (2020) that assured the effectiveness of the proposed BL program in developing EFL in-service teachers' 21st century skills.

6. Challenges

The researcher encountered the following challenges:

2-Some students could not access the link of the program as they did not have an internet link on their mobile phones. So, she allowed them to use the Faculty Wi-Fi.

3- Some students resisted the use of online activities and wanted to adhere to regular instruction. The researcher convinced them to change their viewpoint and try to learn electronically.

7. Conclusions

The results of the study revealed that BL -based program significantly improved the 21st century skills of general diploma students. Therefore, the significant differences observed in favour of the experimental group in the post administration of the 21st century skills cognitive test and observation checklist can be attributed to the implementation of the BL-based program."

The experimental group's improvement was in each 21st century skill.

For instance, they developed critical thinking skills through collecting information using different sources, comparing and contrasting pieces of information, evaluating the collected information and drawing conclusions or generalizations. Also, they developed problem solving skills through finding different solutions based on logical evidence, applying the best solution and evaluating the effect of the implementation of the solution. They could find solutions that were out of the box.

Moreover, they developed collaboration skills through working actively in groups to achieve common goals helping and supporting each other. They enhanced social skills respecting the contributions of their colleagues and appreciating the alternative point of view. In addition, they developed communication skills through communicating with the researcher and each other using verbal, written and non - verbal communication. They could communicate effectively using their personal experience in face to face and online sessions.

8. Recommendations of the study

The following recommendations could be presented in the light of the previous results:

1. EFL faculty members have to give top priority to BL when designing their courses.

2. Training pre-service teachers in how to teach using BL during teaching practice course.
3. Organizing workshops and scientific conferences for in – service teachers about using BL in teaching English.
4. EFL teachers should train students in the use BL to develop language skills as well as 21 century skills.
5. BL should be emphasized in different educational stages.

9. Suggestions for further research

The following suggestions are presented based on the findings of the present study.

- 1-Investigating the effect of BL on developing oral communication skills.
- 2-Investigating the effect of BL on developing critical writing.
- 3-Using BL- based program to develop student teachers' instructional skills.

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