



مجلة كلية التربية



The Impact of an Enrichment Program for Teaching English in the Light of the 21st Century Skills on Developing Student-Teachers' Pedagogical Awareness

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أثر برنامج إثرائي لتدريس اللغة الإنجليزية في ضوء مهارات القرن الحادي
والعشرين في تحسين الوعي التدريسي لدى الطلاب المعلمين بشعبة اللغة
الإنجليزية

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مستخلص

يهدف البحث الحالي إلى التحقيق في تأثير برنامج إثرائي لتدريس اللغة الإنجليزية في ضوء مهارات القرن الحادي والعشرين على تطوير الوعي التدريسي لدى طلاب اللغة الإنجليزية كلغة أجنبية. تألف المشاركون في البحث من عشرة طلاب يدرسون في قسم اللغة الإنجليزية بكلية التربية بجامعة دمياط. استخدم الباحث نهجا شبه تجريبي مع مجموعة واحدة. استخدم الباحث استبياناً مفتوحاً لثمانية متخصصين في تدريس اللغة الإنجليزية كلغة أجنبية، واستبيان مفتوح لتسعين معلماً من طلاب اللغة الإنجليزية كلغة أجنبية مسجلين في السنة الرابعة، واستبيان تحليل الحاجة لطلاب اللغة الإنجليزية كلغة أجنبية واختبار قبلي وبعدي للوعي التدريسي. أظهرت نتائج البحث أن استخدام البرنامج الإثرائي كان فعالاً في تطوير الوعي التدريسي لطلاب اللغة الإنجليزية كلغة أجنبية.

الكلمات المفتاحية: برنامج إثرائي، مهارات القرن الحادي والعشرين، الوعي التدريسي للطلاب المعلمين

The Impact of an Enrichment Program for Teaching English in the Light of the 21st Century Skills on Developing EFL Student-Teachers' Pedagogical Awareness

Abstract:

The present research aimed at investigating the effect of an enrichment program for teaching English in the light of the 21st century skills on developing EFL student- teachers' pedagogical awareness. The research participants consisted of ten students studying at the department of English at the Faculty of Education in Damietta University. The researcher used a quasi-experimental approach with one group. The researcher used an open-ended questionnaire for eight EFL teaching specialists, an open-ended questionnaire for ninety EFL student-teachers enrolled in the fourth year, a need analysis questionnaire for EFL student-teachers and a pre-post pedagogical awareness test. The research results showed that using the enrichment program was effective on developing EFL student-teachers' pedagogical awareness.

Key words: enrichment program, 21st century skills, student-teachers' pedagogical awareness

1. Introduction

teachers' awareness has an important role in effective teaching. Consequently, teacher education researchers have emphasized the necessity of supporting the development of pre-service and in-service teachers' awareness base in teacher education programs. Three components of teachers' awareness are usually differentiated: content awareness (knowledge of the subject), pedagogical content awareness (knowledge about teaching and learning a specific subject), and general pedagogical awareness (not linked to subject matter). While some body of empirical studies have been conducted about content awareness and pedagogical content awareness, there is a need for more specialized awareness of teachers in creating and facilitating effective teaching and learning environments for all students, independent of subject matter (Malva et al, 2019).

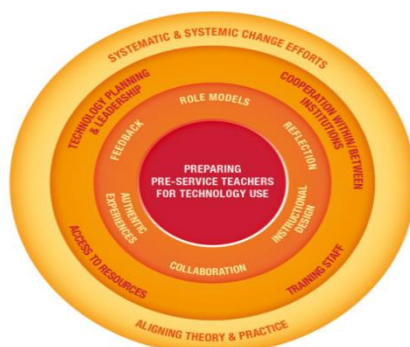
Tondeur et al (2019) illustrated that pre-service teachers' preparation for technology use in schools has been considered one of the priorities of teacher-training institutions (TTI) in many countries. Recent calls confirm that to develop pre-service teachers' effective technology integration and general pedagogical awareness, TTIs need to help them connect their knowledge of technology, pedagogy, and content (TPACK). For technology integration to occur, teachers must be competent in these three forms of awareness, they must be able to integrate technological, pedagogical, and content knowledge. In the TPACK framework, the importance of making sensible choices in the use of technology when teaching particular content to a specific target group is emphasized. The requirement to better connect pre-service teachers'

preparation in the use of technology with pedagogical issues in the curriculum has been noted by several researchers. This requirement has resulted in the adoption of various strategies.

There are different strategies to prepare pre-service teachers for TPACK. Tondeur et al (2019) asserted that twelve key themes need to be in place in the TTIs (Fig. 1). The two outward circles in the SQD (Synthesis of Qualitative Data) model include the conditions necessary at the institutional level, such as technology planning and leadership, training staff, access to resources, and cooperation within and between the institutions. The inner circle includes six micro-level strategies: (1) role models, (2) reflection, (3) instructional design, (4) collaboration, (5) authentic experiences and (6) feedback. These strategies were applied in the current research as it regarded the 21st century skills, which are considered an umbrella for these strategies, in designing the enrichment program

Figure. 1

SQD-model to prepare pre-service teachers for technology use



Note. From Tondeur et al. (2019)

Daniel (2021) asserted that the current learning environment is substantially different from what existed for most of the 20th century. Nowadays, learners and teachers must navigate in ever-changing contexts where education is influenced by technological progress, economic barriers, a changing employment requirement, and even international politics. Studies indicate that employers are today after hiring graduates with strong skills in areas merging with international awareness, creativity, communication, leadership, and teamwork. Skills and experiences in these areas are necessary for preparation for the current economy and to explore jobs that do not exist yet. These interpersonal skills are not often the subject of students' degrees, yet there are opportunities in online education to cultivate them. With increased interest in new career options, the need to reconsider how to teach subjects in this ever-changing online environment becomes very urgent.

1.1. Context of the Problem

To indicate the importance of the current research, the researcher reviewed the previous studies related to student-teachers' pedagogical awareness. Malva et al (2019) asserted that teachers' pedagogical awareness has an important role in effective teaching. Consequently, teacher education researchers have emphasized the necessity of supporting the development of pre-service and in-service teachers' pedagogical awareness base in teacher education programs. Valtonen et al (2021) asserted that there is a lack of studies focusing on the development of student-teachers' pedagogical awareness concerning the 21st-century skills over time. This research provides a new perspective on EFL student-teachers' perceptions of their

pedagogical awareness in the light of the 21st century. Developing EFL student-teachers' pedagogical awareness by designing and implementing an enrichment program in the light of the 21st century skills that has not been tackled before in the Egyptian context.

To investigate the current situation, structured interviews were conducted with five EFL student-teachers trainers at Damietta Faculty of Education, Department of Curriculum and Instruction and the following results and recommendations have been provided: a) the current methodology courses are not sufficient for developing student-teachers' pedagogical awareness and need more hours or improvement to enhance self-learning that prepare students to access recent pedagogical resources whatever changes come. b) paper and pencil exercises are not sufficient in this era of digitization. c) students should be accustomed to working via varieties of platforms as this is required to be a 21st century student and future teachers. d) enrichment program based on the light of the 21st century skills is required to develop students' pedagogical awareness.

1.2. Statement of the Problem

The present researcher could state the problem as follows: EFL student-teachers' pedagogical awareness is insufficient; Therefore, the current researcher attempts to investigate the effectiveness of an enrichment program in the light of the 21st century skills on developing EFL student-teachers' pedagogical awareness.

1.3. Questions of the Research

The current research attempts to answer the following main question:

What is the effectiveness of an enrichment program in the light of the 21st century for teaching English on developing EFL student-teachers' pedagogical awareness?

The following sub-questions emerge:

1. What are the essential aspects of pedagogical awareness required for EFL student teachers in the 21st century?
2. To what extent do EFL student teachers currently possess the essential aspects of pedagogical awareness required for the 21st century?
3. To what extent can an enrichment program in the light of the 21st century skills, develop the necessary pedagogical awareness of EFL student teachers?
4. What are the core components of the enrichment program in the light of the 21st century for teaching English to develop the necessary pedagogical awareness of EFL student-teachers?

2. Review of Literature and Related Studies

2.1 Pedagogical Awareness

Pedagogical awareness, as conceptualized by contemporary scholars like Zeichner (2010) and Driel and Verloop (2011), goes beyond simply understanding teaching practices. It delves into a teacher's deep and reflective engagement with their own beliefs, values, and assumptions about teaching and learning, and how these influence their actions in classrooms. This involves not only recognizing diverse student needs and adapting instruction accordingly, but also critically examining personal biases and considering the broader social and cultural contexts that shape educational experiences.

Recent research, such as that conducted by Cochran-Smith & Lytle (2009) and further explored in studies by researchers like Zeichner (2014) and Llinares (2021), underscores the importance of teachers as "inquiring professionals" who actively engage in ongoing self-reflection and collaborative inquiry to enhance their pedagogical practice. This involves analyzing student work, observing teaching through video recordings, and engaging in peer feedback and critical dialogue to identify areas for growth and refinement. However, recent research also emphasizes the need for teachers to critically examine their own positionality and the power dynamics within the classroom, recognizing how their own identities and experiences shape their interactions with students and their interpretations of student learning.

Furthermore, a growing body of research, including studies of Darling-Hammond (2010) and Wayne & Youngs (2003), and more recent work by researchers like Hattie (2022) and OECD (2021), demonstrates a strong correlation between teachers' pedagogical awareness and improved student outcomes. Teachers with high levels of pedagogical awareness are better equipped to create equitable and inclusive learning environments that foster critical thinking, problem-solving, and creativity. They are more likely to implement student-centered approaches, utilize diverse instructional strategies, and effectively address the unique learning needs of all students, including those from marginalized or underrepresented groups.

Professional development initiatives that prioritize collaborative inquiry, action research, and the use of technology to support reflection and knowledge sharing are crucial for enhancing teachers' pedagogical awareness and ultimately improving student achievement. However,

recent research suggests that these initiatives should also focus on developing teachers' cultural competence, addressing issues of equity and social justice, and fostering a supportive and collaborative school culture that values teacher voice and agency.

Several studies conducted in Egypt and the broader Arab region highlight challenges related to EFL student-teachers' pedagogical awareness and also point to a relative scarcity of research on Technological Pedagogical Content Knowledge (TPACK) within this context. Research focusing on the preparation of EFL student-teachers in Egypt has identified significant issues that point to a lack of fully developed pedagogical awareness. For instance, a recurring theme is the "disparity between theory and practice," where programs may overemphasize theoretical knowledge at the expense of practical teaching skills. This can result in graduates who, despite understanding educational theories, lack the confidence and practical abilities crucial for effective classroom management and adaptive teaching – key components of pedagogical awareness. Studies have noted that this gap hinders the professional development of future EFL teachers in Egypt (Al-Dabbagh, 2013).

A study by Al-Jaro, Asmawi, and Hasim (2017), which analyzed the curriculum of an EFL teacher education program in Yemen, found that the existing pedagogical skills courses were insufficient to adequately enhance and strengthen the student-teachers' Pedagogical Content Knowledge (PCK). PCK is critical for effective teaching as it involves integrating subject matter knowledge with appropriate pedagogical strategies. The study's findings suggest that EFL student-teachers in this context may not be fully equipped with the necessary pedagogical

awareness to translate their knowledge into effective classroom practices.

Alghamdi, et al (2018) indicate that while TPACK has been explored in many subject areas, "technology integration in EFL instruction using TPACK's model and its applications appear to be scant." This suggests a need for more focused research on how EFL teachers, including student-teachers, are prepared to integrate technology, pedagogy, and content knowledge in the Arab region. The same compilation of research also pointed to findings from Saudi Arabia indicating that EFL teachers demonstrated low self-efficacy in aspects of TPACK, such as "language-learning pedagogical technology skills, and ability to effectively integrate technology into EFL instruction." This implies a challenge in the pedagogical awareness related to technology use.

Furthermore, a more recent study by Ali and Waer (2023), conducted with pre-service EFL teachers in Egypt, found that while an intervention could improve knowledge of TPACK domains, "full TPACK integration was still developing," with Pedagogical Content Knowledge (PCK) remaining dominant. This highlights that even when TPACK is a focus, achieving comprehensive integration (which relies on strong pedagogical awareness in technological contexts) is an ongoing challenge and an area where more research and development are indicated. The general observation that many TPACK studies focus on application after training also leaves a gap in understanding pre-service teachers' initial TPACK confidence and awareness.

These examples collectively suggest that there is a recognized problem concerning the depth of pedagogical awareness among EFL student-teachers in Egypt and parts

of the Arab world, and a concurrent need for more extensive research into TPACK to better prepare teachers for technology-enhanced language teaching.

2.2 21st Century Skills

In an era defined by rapid technological advancement and information proliferation, the development of critical cognitive skills is paramount for navigating complex social landscapes and fostering individual and collective efficacy. This imperative is particularly salient within vulnerable communities susceptible to misinformation and among young learners tasked with mastering collaborative problem-solving. Furthermore, the cultivation of sustained creativity within educational settings necessitates a nuanced understanding of the processes and skills that underpin innovative pedagogical practices. Consequently, research endeavors have increasingly focused on elucidating the mechanisms by which individuals acquire and apply these essential competencies, as exemplified by the studies of Angelelli et al. (2023), Li et al. (2023), and Fischer (2020). Angelelli, et al. (2023) reported on the development of a serious game (a card-based role-playing game) using Brazilian folk heroes aimed to develop critical thinking skills to empower vulnerable communities affected by misinformation and fake news

The ability to understand and sort out pieces of reliable information and fake news has become a fundamental cognitive skill in the 21st century. Angelelli, et al. (2023) reported on the development of a serious game (a card-based role-playing game) using Brazilian folk heroes aimed to develop critical thinking skills to empower vulnerable communities affected by misinformation and fake news. Four groups located in the city of Goiânia

(Brazil) participated in this research: one group of people experiencing homelessness; two groups of favela residents (one urban and one in the suburbs) and one group of recyclable material collectors. Work with these groups continued for 10 months. Participatory observations and individual interviews with each participant were conducted. Their daily interaction with information was discussed. The analyses of the observations and interview data gave a glimpse of the communicative needs of the groups. Inserting players into a narrative where they can make decisions based on critical thinking and their reflections on the news was important for building knowledge and developing critical thinking in these communities. The nature of the game (interactive and cooperative) allowed participants to focus on problem-solving skills and group work. It encouraged them to use real-life knowledge and skills to solve the fictional problems presented by the narrative.

Li, et al. (2023) illustrated that collaborative problem solving (CPS) has been considered one of the vital 21st-century skills. To be successful in CPS requires not only CPS skills but also positive attitudes towards collaboration (i.e., collaboration dispositions). However, the relationship between CPS skills and collaboration dispositions has not been studied much, especially among early adolescent students. The researchers aimed to investigate the dimensions of students' collaboration dispositions and their relationship to students' assessed CPS skills (i.e., social and cognitive skills of CPS). Data were collected from 214 Finnish sixth-grade students (Meanage = 12.44, SDage = 0.32, female = 116, 54.21%) in 2019. Students' CPS skills were assessed based on the log file data collected from student pairs' participation in four tasks in a

computer-based assessment environment. Collaboration dispositions were measured through a self-report questionnaire. Exploratory factor analysis was applied to investigate the dimensions of students' collaboration dispositions. In addition, analysis of variance was utilized to examine the dimensions of students' collaboration dispositions across their diverse social and cognitive CPS skills. The results showed that three dimensions of students' collaboration dispositions were identified, namely, negotiation, advocate/guide, and cooperation. Further, the early adolescent students' CPS social skills, but not the cognitive skills of CPS, were associated with their perceived collaboration dispositions.

Fischer (2020) sought in his study to identify the processes and skills in which six junior college teachers engaged to sustain long-term, localized creativity. The results of a complementary qualitative analysis indicated that the participants engage in four interconnected processes: introspection to align values and practices; reification to select tasks, maximize collaboration, and sell ideas; resistance to overcome obstacles; and confidence-building to slowly increase the scope and impact of projects over time. The study also presents specific implications for colleges wishing to foster creativity in teachers, namely the development of salesmanship, as well as institutional recognition and support for creative teaching.

Commentary

This paragraph provides a brief summary of the main points discussed in the review Angelelli et al. (2023) address the critical need to equip individuals with the skills to navigate the complexities of information in today's

world. This relevance extends to English language teaching, where student-teachers need to be aware of the importance of fostering critical thinking and information literacy in their students. The Angelelli et al. (2023) study highlights the communicative needs of the target groups. English language teaching inherently focuses on developing communicative competencies. Student-teachers need to understand how to design instruction that fosters effective communication, including the ability to critically analyze and synthesize information

Li et al.'s (2023) study and the current research are fundamentally rooted in the importance of 21st-century skills. Li et al. directly investigates CPS, a core 21st-century competency. The current research also focuses on 21st-century skills, albeit within the context of English language teaching and pedagogical development. The dispositions that Li et al. identified are transferable skills, meaning they are useful in many different situations. These skills are very important for teachers, as they are constantly working with groups of people, and need to be able to work collaboratively. By understanding how those skills are formed, and how they interact with each other, it can help in the development of English teaching programs.

Fischer's (2020) study and the current research center on the development of essential skills within educators. Fischer focuses on creativity, while the English enrichment program emphasizes 21st-century skills and pedagogical awareness. However, both are fundamentally about improving teacher practice. Fischer's identification of processes like "introspection," "reification," "resistance," and "confidence-building" provides a framework for understanding how teachers adapt and grow. These processes are highly relevant to student-teachers who are

learning to integrate 21st-century skills into their English instruction. "Introspection" in Fischer's study is closely related to reflective practice, a key component of pedagogical awareness. Student-teachers need to reflect on their teaching practices, align them with their values, and adapt them based on their students' needs. The current research about the enrichment program would likely encourage student teachers to reflect on their teaching practice, and how to improve it, just as Fischer's study found that the teachers in his study used introspection to improve their practice.

3.Method

3.1 Design

The current research used the quasi-experimental approach. This research investigated the impact of an enrichment program in the light of 21st century skills for teaching English on developing EFL student-teachers' pedagogical awareness. Employing a quasi-experimental design with one group. The quasi-experimental approach was chosen due to the inherent limitations in randomly assigning participants to a group within an existing educational setting. This method allows for a controlled comparison while acknowledging the existing group structures. By examining the pedagogical awareness of student-teachers taught through an enrichment program compared to those who followed traditional methods, this research aimed to provide valuable insights into the benefits of an enrichment program for enhancing teacher training and improving EFL student-teachers' pedagogical awareness. The current research included three phases: First, to investigate the current situation, structured interviews were conducted with five academic professors

at Damietta Faculty of Education, Department of Curriculum and Instruction. For collecting data in order to build an open-ended questionnaire for fourth year student-teachers at Damietta Faculty of Education, open-ended questionnaires were designed and then used by eight academic professors at Damietta Faculty of Education, Departments of Curriculum and Instruction and Technology, twelve supervisors of English from Damietta and Mansoura, and twenty teachers of English teaching in governmental and language schools from Damietta and Mansoura.

Second, depending on the data gathered from the previous tools, the need analysis questionnaire for thirty-fourth-year EFL student-teachers at Damietta Faculty of Education was designed. The need analysis questionnaire responses were dealt with quantitatively.

Third, a pre-post pedagogical awareness test was designed and applied to investigate the participants' acquaintance of teaching and learning processes. The results of the test were analyzed quantitatively.

3.2 Participants

Participants of the current research were fourth-year EFL student-teachers at Damietta Faculty of Education during the first term in the academic year 2023/2024. The pilot study participants were thirty participants who were randomly selected. The main study participants were ten students in one teaching practice group other than the thirty participants included in the pilot study.

3.3 Hypotheses

Based on the previous studies, the researcher put the following hypotheses:

1. There are statistically significant differences at the significance level of ≤ 0.05 between the mean ranks of the participants in the pedagogical awareness pretest and posttest in favor of the post test
2. EFL student-teachers who participate in an enrichment program focused on 21st-century skills for teaching English will demonstrate a statistically significant improvement in their pedagogical awareness.

3.4 Instruments and Materials

The following instruments and materials were used in the current research:

1. An open-ended questionnaire for EFL staff members, supervisors and teachers
2. EFL student-teachers' need analysis questionnaire
3. An inventory of pedagogical awareness areas required for EFL student-teachers in Damietta Faculty of Education.
4. A pre- post pedagogical awareness test for EFL student-teachers in Damietta Faculty of Education.
5. An enrichment program in the light of the 21st century for teaching English for EFL student-teachers in Damietta Faculty of Education

To establish the reliability of the test, it was administered to a group of thirty fourth year EFL students, other than the research participants, who were randomly selected from the Faculty of Education in Damietta University. Cronbach's alpha coefficient was used to calculate the reliability of the test. The reliability coefficient of the test was (0.79).

4. The Enrichment Program

The implementation of the enrichment program started on the 1st of February, 2024 and lasted for eight weeks. Before implementing the program, the researcher conducted the pretest to evaluate EFL student-teachers' knowledge before implementing the program. Then, the enrichment program was implemented. The participants were taught by the researcher for eight weeks before conducting the post test. An orientation session: at the beginning of the experiment, an introductory session was conducted by using data show in the language laboratory at Damietta Faculty of Education and took about one hour and a half. PowerPoint slides were used to explain the procedures of each online session.

The enrichment program was used depending on a supportive learning environment through encouraging teacher-to-student engagement and student-to-student interaction to develop EFL student-teachers' pedagogical awareness at Damietta Faculty of Education. The researcher conducted eight online sessions (one session a week) synchronously to implement the enrichment program. Each session of the program was divided into four stages: review, warm up, presentation and practice, and follow up. The experimental group participants were divided into two groups of five students. Each group assigned a leader and chose a name for the group. The groups were built in order that the group members support each other and reduce shyness.

Individual tasks were given to support self- confidence and get individuals to show their abilities which helped them highly esteem these abilities. In the review stage, the researcher tried to recall the previously taught information

by asking questions. Warm-up was used to activate students cognitively and emotionally to succeed in the lesson. In the presentation and practice stage, tasks were explained and students were shown how to do them including an identification of the resources they were going to use. In the follow-up stage, students' understanding was checked in this stage using different techniques. Several assignments were assigned and implemented all over the sessions of the enrichment program. The researcher checked students' assignments and gave them chance to modify their work according to researcher's and students' suggestions. The statistical analysis was conducted using SPSS.

4.1.Design and Implementation of the Enrichment Program

For the purpose of the current research, an enrichment program was implemented to teach English in the light of the 21st century skills for developing EFL student-teachers' pedagogical awareness.

B) Aim of the Enrichment Program

The enrichment program in the current research aims at developing EFL student-teachers' pedagogical awareness

A) Duration of the Enrichment Program

This study was implemented in the academic year 2023/2024. The following table 3.15 illustrates the procedures that took place in each semester of the academic year 2023/2024

Table 3.15

The Program Duration

The enrichment program was designed and implemented at the second semester of the academic year 2023/2024.

First Semester	Second Semester
conducting the study instruments on the sample of the piloting study.	implementing the program
pre-administration of the instrument on the participants (pedagogical awareness test)	
designing the enrichment program.	post-administration of the (pedagogical awareness test)

The participants attended eight sessions for delivering the enrichment program. Each session took about two hours.

C) Content of the Enrichment Program

The content of the enrichment program included 16 topics. Each two topics were delivered through two-hour training session face-to-face or via Zoom. Table 3.16 shows the content of the enrichment program.

Table3.16

Content of the Enrichment Program

Sessions of the Enrichment Program	Modules	Topics
1	1	reflecting on teaching experience & active student engagement
2	1	Evaluating performance & Challenges, Technology & 21 st century skills in teaching
3	1& 2	Engaging language learning curriculum & Communication techniques for effective learning
4	2	Active listening and confidence building & Understanding information and teaching methods
5	2	Expressing learning and simulation techniques & Engaging students in tasks with effective communication
6	3	Technology integration skills activities & Simulation and language learning
7	3	Motivation and mindset & Understanding assessment types in EFL
8	3	Reflection activities & technology integration skills sample lesson plan

D) Requirements of the Enrichment Program

The enrichment program in this study depended on some assumptions:

1. Participants need to use some collaborative platforms mainly WhatsApp and Zoom in order to interact and collaborate, share their ideas with others, and carry out the tasks.
2. Participants should be familiarized with some writing applications mainly Word Document, PDF convertor and PowerPoint to deliver their work and assignments.

3. Different activities should be used in each session for the most benefit.
4. Evaluation should be continuous and varied to consider the participants' individual differences and provide them with supportive feedback.

E) Designing and Implementing the Enrichment Program

To implement the enrichment program, the researcher delivered the program to the participants:

- After designing the three modules, the researcher implemented them in four different face-to-face sessions and four different online sessions.
- These sessions were delivered in a supportive learning environment through encouraging teacher-to-student engagement and student-to-student interaction (both groups were included separately).
- Each topic of the program was divided into four stages: review, warm up, presentation and practice, and follow up.
 - Individual tasks are given to support self- confidence and get the participants to show their abilities which help them build self-esteem.
 - At the review stage, some questions were used to recall the previously taught information.
 - Warm-up is used to lead the participants to get into the new area.
 - At the presentation and practice stage, tasks were explained and students were guided to do them more effectively. Different resources were suggested.
 - At the follow-up stage, students' understanding was checked using different techniques.

- The researcher asked the participants to put the learned information into practice in classrooms.
- The participants video recorded their own teaching attempting, hopefully, to implement the information presented in each modules.
- The participants got feedback from their colleagues and the researcher for better performance.

F) Teaching Strategies, Aids and Equipment of the Enrichment Program

The researcher used some strategies in implementing the enrichment program. Game-based learning, online learning, experiential learning and blended learning were used during implementing the enrichment program. Some internet applications and platforms were used during the program to help students interact collaboratively with the researcher such as: WhatsApp application, Zoom, Microsoft Word, PowerPoint, some websites were also used to gather information such as: YouTube and Google.

G) Evaluation of the Enrichment Program

This study employed a quasi-experimental approach to evaluate the effectiveness of the enrichment program as follows:

1) Formative Assessment

Different tasks such as exit ticket, think-pair-share, self-reflection completion of pair activity and brainstorming were used for assessing the participants' progress in pedagogical awareness during implementing the program. Necessary feedback was provided on their performance.

2) Pre-Assessment

Before designing and implementing the program a pedagogical awareness test was implemented on the

participants to assess their level before being involved in the treatment.

3) Formative Assessment

Different tasks were used for assessing the participants' progress in pedagogical awareness during implementing the program. Necessary feedback was provided on their performance.

4) Post Assessment

The post pedagogical awareness test was administered to investigate the effectiveness of the enrichment program on developing the pedagogical awareness of the participants. Comparing the development of the pedagogical awareness of the participants before and after the treatment helped the researcher identify the effect of the enrichment program.

5. Results

This section presents the findings of the study. The forthcoming results will be systematically examined and interpreted in direct relation to the hypotheses. Each finding will be analyzed to determine its support or refutation of the proposed hypotheses, providing a clear understanding of the study's outcomes in the context of its initial theoretical framework.

5.1. The First Hypothesis

" There are statistically significant differences at the significance level of ≤ 0.05 between the mean ranks of the participants in the pedagogical awareness pretest and posttest in favor of the pedagogical awareness posttest". The non-parametric Wilcoxon Test was used to check the significance of the difference between the mean ranks of the participants in the pre-post pedagogical awareness test. The results are shown in Table

Table 2

Comparing Significance of the Differences Between the Mean Ranks of the Participants in the Pre-Post Pedagogical Awareness Test

Domains		N	Mean rank	Sum of ranks	Wilcoxon Test Z P-value	
Teaching Methods and Techniques & Professional Development.	Negative Ranks	0	0.00	0.00	2.821	0.005
	Positive Ranks	10	5.50	55.00		
	Ties	0				
Understanding of Language Learning & Curriculum and Materials:	Negative Ranks	0	0.00	0.00	2.831	0.005
	Positive Ranks	10	5.50	55.00		
	Ties	0				
Assessment and Evaluation	Negative Ranks	0	0.00	0.00	2.873	0.004
	Positive Ranks	10	5.50	55.00		
	Ties	0				
Cultural Awareness	Negative Ranks	0	0.00	0.00	2.840	0.005
	Positive Ranks	10	5.50	55.00		
	Ties	0				
Total rank	Negative Ranks	0	0.00	0.00	2.814	0.005
	Positive Ranks	10	5.50	55.00		
	Ties	0				

Table 2 indicates statistically significant differences at the 0.05 level between the mean ranks of the participants' scores in the pre-post pedagogical awareness test in favor

of the pedagogical awareness post-test. The "Z" values for the test domains ranged from 2.821 to 2.873, and it was 2.814 for the total test score. The "Z" values for the questions and the total test score were statistically significant at 0.05 level.

Figure 2

Mean Ranks of the Participants on the Pre-Post Pedagogical Awareness Test (Test Domains)

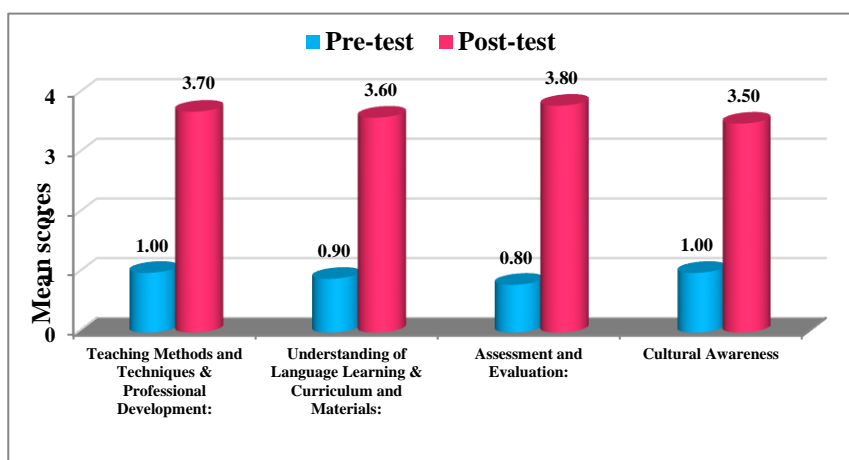
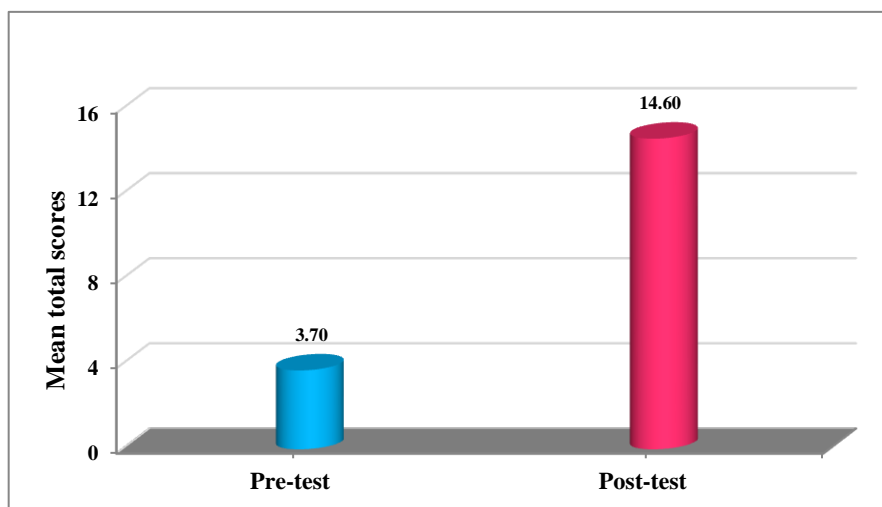


Figure 3 clearly indicates that the post pedagogical awareness test means ranks of the participants of EFL students-teachers required for 21st century (test domains) are higher than their mean ranks on the pre pedagogical awareness test.

Based on the results of table 2, figure 2 and figure 3, it is evident that the first hypothesis of the research is confirmed.

Figure 3

Mean Ranks of the Participants' Scores in the Pre-Post Pedagogical Awareness Test (total score).



As evident from Figure 2, the mean ranks of the participants on the pedagogical awareness posttest (total score) are higher than their mean ranks on the pedagogical awareness pretest. Figure 3 illustrates the mean ranks experimental group participants on the pre-post pedagogical awareness test (test domains).

5.2 The Second Hypothesis

"EFL student-teachers who participate in an enrichment program focused on 21st-century skills for teaching English will demonstrate a statistically significant improvement in their pedagogical awareness." Blake's Modified Gain Ratio Equation was used to calculate the effectiveness of the enrichment program on developing EFL student-teachers (experimental group) pedagogical awareness in the light of the 21st century skills. Blake set the ratio (1.2) as the Criterion for effectiveness. The results are presented in tables 3.

Table 3

Effectiveness the Enrichment Program based on the light of the 21st century skills, for Teaching English on Developing Pedagogical Awareness

Questions		Mean	High score	Effectiveness ratio
Teaching Methods and Techniques & Professional Development.	Pre-measurement	1.00	4	1.58
	Post-measurement	3.70		
Understanding of Language Learning & Curriculum and Materials:	Pre-measurement	0.90	4	1.55
	Post-measurement	3.60		
Assessment and Evaluation	Pre-measurement	0.80	4	1.69
	Post-measurement	3.80		
Cultural Awareness	Pre-measurement	1.00	4	1.46
	Post-measurement	3.50		
Total score	Pre-measurement	3.70	16	1.57
	Post-measurement	14.60		

Table 3 presents the effectiveness of the enrichment program on developing pedagogical awareness in the light of the 21st century skills. The effectiveness rates of the pedagogical awareness test questions ranged from 1.46 to 1.69, with an overall effectiveness rate of 1.57. This indicates that the administered enrichment program was effective on developing pedagogical awareness of the participants.

Based on the results of table 3, it is evident that the second hypothesis of the research is supported.

6. Discussion

Findings of the current research show that the enrichment program achieved a suitable level of effectiveness on developing the pedagogical awareness of EFL student-teachers at Damietta Faculty of Education. The enrichment program helped EFL student-teachers identify the required pedagogical awareness domains for

being successful teachers in the 21st century. It enhanced their abilities to use some software program, as Word Office, with a lot of their facilities. The enrichment program helped students to participate collaboratively across social media and various platforms related to their specialization. This could be attributed to the following: using collaborative teaching methods and techniques, understanding of language learning, using new methods for professional development, and identifying different perspectives in curriculum and cultural awareness. These results align with a study by Ali and Waer (2023) in Egypt which found that a TPACK-based course intervention improved pre-service EFL teachers' knowledge and perception of TPACK domains, which includes technological knowledge.

A growing body of research, including studies by Hattie (2022) and OECD (2021), demonstrates a strong correlation between teachers' pedagogical awareness and improved student outcomes. Teachers with high levels of pedagogical awareness are better equipped to create equitable and inclusive learning environments that foster critical thinking, problem-solving, and creativity. They are more likely to implement student-centered approaches, utilize diverse instructional strategies, and effectively address the unique learning needs of all students, including those from marginalized or underrepresented groups. However, recent research prioritizes collaborative inquiry, the use of technology to support reflection and knowledge sharing to enhance teachers' pedagogical awareness and ultimately improving student achievement. It also focuses on developing teachers' cultural competence, and fostering a supportive and collaborative school culture that values teacher voice.

7. Conclusion

The results of the current research proved that the enrichment program is effective on developing EFL student-teachers' pedagogical awareness. This was reflected in the post administration of the test. The findings of this research highly appreciated incorporating enrichment programs in teaching English for different specializations. As using enrichment programs enabled students to identify some pedagogical awareness domains such as using collaborative teaching methods and techniques, understanding of language learning, using new methods for professional development, and identifying perspectives in curriculum and cultural awareness, it is recommended to design and implement enrichment programs to develop students' pedagogical awareness in other specialization. Therefore, university professors and instructors are recommended to engage their learners in new enrichment programs to help them increase their level of pedagogical awareness.

Furthermore, course designers are advised to recognize the importance of incorporating enrichment programs into university courses to develop pedagogical awareness as it is required for the ever changing 21st century. Finally, students studying different specializations need to be trained on how to improve their pedagogical awareness. Therefore, the successful use of the enrichment program on developing EFL students-teachers' pedagogical awareness requires careful planning, appropriate choice of materials and activities, and collaboration among all educational practitioners.

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