

Using a Project-Based Instructional Programme for Developing EFL Students' Phonological Awareness and Self-Efficacy

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ABSTRACT

Phonological awareness and self-efficacy are crucial skills for EFL students, impacting their comprehension and linguistic performance. However, many EFL students encounter difficulties in these areas, particularly while studying pronunciation and phonology courses. This study explores the impact of project-based learning (PBL) with a focus on multiple intelligences (MI) on the enhancement of phonological awareness and self-efficacy among English as a Foreign Language (EFL) students facing challenges in pronunciation and phonology courses. With a mixed-methods design involving 79 second-year university EFL students, the eight-week PBL programme integrates tasks aligned with students' dominant intelligences and themed around "English around the world." The study reveals significant improvements in both phonological awareness and self-efficacy, underscored by a positive correlation between the scores. Qualitative insights from interviews complement the quantitative findings, highlighting heightened interest, motivation, collaboration, creativity, and autonomy in English learning through PBL and MI. Despite these advantages, the study acknowledges challenges in areas such as time management, group work, and assessment. In conclusion, PBL and MI emerge as effective and engaging pedagogies for EFL students, contributing meaningful insights to the literature and offering practical recommendations for practitioners and researchers to optimize the implementation of these approaches for the development of phonological awareness and self-efficacy in EFL contexts.

1. Introduction

Phonological awareness is the ability to identify and manipulate the sound units of a language, such as syllables, onset-rime¹, and phonemes. It is a crucial skill for learning to read and write, as well as for developing oral communication and comprehension. Phonological awareness is especially important for English as a foreign language (EFL) students, who need to acquire the sound system of a new language that may differ significantly from their native language. However, many EFL students experience difficulties with phonological awareness that interfere with their linguistic performance and academic achievement while studying pronunciation and phonology courses. These difficulties may stem from various factors, such as the lack of exposure to authentic and varied input, the influence of the first language, the complexity and inconsistency of the English orthography, and the inadequacy of the traditional methods of teaching phonology. Therefore, there is a need to explore alternative and innovative pedagogical approaches that can enhance EFL students' phonological awareness and foster positive attitudes towards English language learning (Smith, 2023).

One of the possible approaches is project-based learning (PBL), which is a student-centred and inquiry-based method of instruction that involves students working in groups to investigate and solve real-world problems or questions. PBL has been shown to promote students' motivation, engagement, collaboration, creativity, and autonomy in learning. Moreover, PBL can be integrated with Gardner's theory of multiple intelligences (MI), which suggests that there are eight different types of intelligence that people possess, such as linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, and naturalistic (Smith, 2021). By incorporating MI into PBL, the learning experience can be tailored to students' unique strengths and preferences, catering for their diverse learning styles and needs (Johnson, 2020).

¹ The onset is the part of a single-syllable word before the vowel. The rime is the part of a word including the vowel and the letters that follows.

This study² aims to investigate the effectiveness of PBL, incorporating MI, in improving EFL students' phonological awareness and self-efficacy. Self-efficacy is the belief in one's ability to perform a specific task or achieve a certain goal. It is an important factor that influences students' learning outcomes, motivation, and persistence. The study also explores the students' and instructors' attitudes towards PBL and MI as innovative pedagogical approaches for EFL instruction. The study employs a mixed-methods design and integrates a PBL programme into an eight-week intermediate-level English course. The programme involves students working in groups based on their dominant intelligences to complete tasks related to "English around the world" themes. The sample consists of 79 second year university EFL students who were purposively selected from the English Language teaching department. Data collection includes pre- and post-tests for phonological awareness and self-efficacy, as well as semi-structured interviews.

Project-based learning, as mentioned earlier, is a learner-centred approach that involves students in collaborative work through authentic tasks (Thomas, 2000). Phonological awareness is a fundamental skill that refers to the ability to manipulate and analyse the sound system of a language, including recognizing rhymes, syllables, and phonemes (Goswami & Bryant, 1990). Self-efficacy, as proposed by Bandura (1997), refers to an individual's belief in their capability to perform specific tasks or attain particular goals. From a social-cognitive perspective, self-efficacy can be defined as one's belief in their capacity to organize and execute actions required to achieve specific accomplishments (Bandura, 1997). Gardner's MI theory, introduced in 1983, posits that individuals possess eight distinct intelligences to varying degrees: linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal, and naturalistic. Each intelligence represents a distinct way of processing information and solving problems, and each can be developed through education and training.

This study aims to achieve the following main objectives:

² This study is not extracted from any MA or Ph.D thesis.

1. Measure and compare the levels of phonological awareness among EFL students participating in a PBL programme incorporating MI and those following the traditional method of teaching phonology, both before and after the intervention.
2. Assess and compare the levels of self-efficacy among EFL students participating in a PBL programme incorporating MI and those following the traditional method of teaching phonology, both before and after the intervention.
3. Investigate and describe the perceptions and experiences of EFL students and instructors participating in a PBL programme incorporating MI regarding its impact on their phonological awareness and self-efficacy.

To address these objectives, the study will explore the following research questions:

1. What are the effects of using a project-based instructional programme, incorporating multiple intelligences, on EFL students' phonological awareness?
2. What are the effects of using a project-based instructional programme, incorporating multiple intelligences, on EFL students' self-efficacy?
3. What are the attitudes of EFL students and instructors towards using a project-based instructional programme, incorporating multiple intelligences?

It is hypothesised that students who participate in a project-based instructional programme incorporating multiple intelligences (MI) will demonstrate significantly higher levels of phonological awareness and self-efficacy compared to students who follow the traditional method of teaching phonology. Additionally, participants and instructors involved in the programme will perceive it positively, highlighting its effectiveness in enhancing phonological awareness and self-efficacy.

2. Literature Review

Phonological awareness significantly impacts language learning, including reading, speaking, writing, and listening (Derwing, 2017). This aspect is particularly crucial for EFL students, who must grasp the sound system of a new language, often differing from their native one. Yet, many encounter difficulties in phonological awareness, affecting their academic performance, attributed to factors like limited exposure to diverse input, influence of their first language, and shortcomings in traditional teaching methods (Derwing, 2017). Consequently, there's a call for innovative

pedagogical approaches to improve phonological awareness and attitudes toward English learning.

The existing literature underscores the pivotal role of phonological awareness in the development of reading skills and other aspects of language learning, such as speaking and writing. Phonological-based instruction, particularly in primary school settings, has demonstrated its effectiveness in enhancing the underlying skills of reading, such as phonemic awareness and non-word reading (Huo & Wang, 2017). Adaptations of phonological-based instruction for EFL students have incorporated creative strategies, such as introducing word meanings before phonological analysis, employing stories, songs, and games to engage students (Huo & Wang, 2017). Despite the importance of phonological awareness in EFL education, a gap exists in equipping EFL teachers with the expertise to explicitly teach these skills, potentially hindering the reading proficiency of EFL learners. Research by Vaisman and Kahn-Horwitz (2020) indicated that both Chinese and Korean EFL teachers demonstrated weaknesses in their explicit knowledge of phonological awareness, phonemic awareness, and phonics. This suggests a need for more teacher training and professional development in this area, as well as more research on the best practices and methods for teaching phonological awareness to EFL students.

Learners tend to select tasks within their perceived capabilities, with those possessing higher self-efficacy more inclined to tackle challenging tasks, invest greater effort, and dedicate more time to their learning, consequently boosting their confidence in the learning process (Zhang, 2018). Research, such as that by Pajares (2003), Pajares and Kranzler (1995), and Pintrich and De Groot (1990), consistently demonstrates a positive relationship between self-efficacy and overall academic achievement. Proficient learners typically exhibit higher levels of self-efficacy and confidence than less proficient peers (Zhang, 2018).

Self-efficacy is influenced by various sources, such as mastery experiences, vicarious or indirect experiences, verbal persuasion, and physiological and emotional states (Bandura, 1997). Teachers play a crucial role in enhancing learners' self-efficacy by setting clear, achievable expectations, providing regular feedback and praise, creating a supportive and encouraging learning environment, offering diverse opportunities

for practice, and fostering the development of self-regulation skills (Bandura, 1997; Pajares & Kranzler, 1995; Zhang, 2018). Both phonological awareness and self-efficacy have demonstrated their influence on EFL students' reading comprehension, oral communication, vocabulary acquisition, and academic achievement (Koda, 2005; Pajares, 2003). This highlights the need for effective instructional approaches that can support or strengthen EFL students' phonological awareness and self-efficacy.

One approach that holds promise in addressing these areas is PBL, which involves students collaboratively working on authentic, real-world projects that require them to apply their knowledge and skills in authentic contexts (Thomas, 2000). PBL has been shown to promote students' motivation, engagement, collaboration, creativity, and autonomy in learning. Moreover, PBL can be integrated with Gardner's theory of multiple intelligences (MI) which, as mentioned earlier, suggests that there are eight different types of intelligence that people possess, such as linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal, and naturalistic (Gardner, 1983, 2000, 2011). By incorporating MI into PBL, the learning experience can be tailored to students' unique strengths and preferences, catering for their diverse learning styles and needs (Smith, J., & Johnson, A., 2020).

Several studies have emphasised the effectiveness of PBL in enhancing the phonological awareness of EFL students. For instance, research by Fatimah (2021) revealed that EFL students participating in a PBL programme exhibited significant improvements in phonological awareness compared to a control group. A separate study by Akyol, , et al. (2022) highlighted the effectiveness of PBL in developing phonological awareness, especially among EFL students with initially low skills. These studies suggest that PBL can provide EFL students with rich and varied sources of input, output, and feedback that can enhance their phonological skills and awareness. However, these studies also have some limitations, such as the small sample size, the short duration of the intervention, and the lack of qualitative data to support the quantitative findings. Therefore, there is a need for more comprehensive and mixed-methods studies that can examine the impact of PBL on phonological awareness among EFL students.

Similarly, several studies have attested to the positive effects of PBL on EFL students' self-efficacy. For example, a study by Shen and Zhang (2021) found that PBL enhanced EFL high school students' self-efficacy beliefs and English language proficiency. Another study by Xu et al. (2022) reported that a summer intensive programme based on PBL improved Chinese EFL learners' self-efficacy and English language proficiency. These studies indicate that PBL can foster EFL students' self-efficacy by providing them with opportunities to set and achieve goals, work collaboratively, receive feedback, and overcome challenges. However, these studies also have some drawbacks, such as the use of self-report measures, the lack of a control group, and the limited generalizability of the findings. Therefore, there is a need for more rigorous and reliable studies that can investigate the effects of PBL on self-efficacy among EFL students.

In response to these research gaps, this study aims to investigate the effectiveness of a project-based instructional programme incorporating Gardner's Multiple Intelligences (MI) theory in improving EFL students' phonological awareness and self-efficacy (Marenus & McLeod, 2023). The programme aligns with PBL and MI principles, featuring planning, implementation, presentation, and evaluation phases, with students collaborating on tasks related to "English around the world."

3. Method

3.1 Participants and Research Design

This study employed a mixed-methods pre-post-test experimental design to investigate the impact of a project-based instructional programme, incorporating multiple intelligences, on the phonological awareness and self-efficacy of EFL students. The study involved 79 participants, consisting of 33 males and 46 females, aged between 20 and 21 years old. These participants were purposively selected from a private university in Erbil/Kurdistan Region, Iraq, during the academic year 2022-2023. All participants were second-year students majoring in English language teaching within the College of Education, Knowledge University. They were specifically enrolled in Phonology and Pronunciation modules. The students were enrolled in an intermediate-level English course that met twice a week for two hours

each session. They were grouped according to their dominant intelligences, as measured by a MI inventory (Lazear, 1999), and worked on various tasks related to the theme of “English around the world” for eight weeks. The tasks included online research, poster or brochure creation, podcast or video production, and oral presentation, as well as phonological awareness tasks, such as rap or song writing, game creation, and podcast production. The quantitative data consisted of pre- and post-tests of phonological awareness adapted from the Comprehensive Test of Phonological Processing (CTOPP) (Wagner, Torgesen, & Rashotte, 1999) and the listening comprehension test (See Appendix A).

The study employed an attitude survey with eight items to gauge or measure students' and instructors' perspectives on project-based learning and multiple intelligences in language education, utilizing a five-point Likert scale. Additionally, a self-efficacy test with six items, adapted from Bandura (1997), assessed students' confidence levels in language tasks (see Appendix B). Qualitative data collection involved semi-structured interviews with ten randomly selected students and two instructors actively engaged in the project-based instructional programme, aiming to capture their perceptions and experiences regarding project-based learning and multiple intelligences in relation to phonological skills and self-efficacy (see Appendix D)³.

3.2 Assessment of Phonological Awareness

To assess EFL students' phonological awareness, a pre-test and post-test (see Appendix A) were administered. The pre-test consisted of a series of phonological awareness tasks, including syllable segmentation and onset –rime blending, phoneme deletion, phoneme substitution and listening comprehension adapted from Wagner, Torgesen, and Rashotte (1999). The post-test employed the same tasks to measure changes in phonological awareness after the PBI programme.

³ Eight different types of intelligences have already been mentioned in this study which are relevant to our adult participants (second year university students). Therefore, the study is not concerned with other types which are suitable for younger learners or children.

3.3 Self-Efficacy Scale

To measure EFL students' self-efficacy, a self-efficacy scale (see Appendix B) adapted from Bandura (1997) was used. This scale assessed participants' beliefs in their abilities to succeed in English language learning tasks and was administered both before and after the project-based instructional programme.

3.4 Attitude Surveys

Attitude surveys (see Appendix C) were administered to both EFL students and instructors before and after the implementation of the project-based instructional programme. The surveys included Likert-scale items to check and measure participants' attitudes and perceptions towards the use of project-based learning and multiple intelligences in the classroom⁴.

3.5 Procedures

Pre-Test

Prior to the implementation of the project-based instructional programme, all participants completed the pre-test assessments for phonological awareness and self-efficacy. The pre-test served as a baseline measure of their abilities and attitudes.

Intervention

The project-based instructional programme was designed based on multiple intelligences theory and incorporated a variety of tasks and activities aimed at enhancing phonological awareness and self-efficacy. The intervention was implemented on an 8-week period during which participants engaged in project-based activities that included collaborative projects, multimedia presentations, and language games⁵.

Post-Test

Following the completion of the 8-week project-based instructional programme, participants underwent post-test assessments for phonological awareness and self-

⁴ For more details and information about the process of preparing the questionnaire, see Appendix C. The questionnaire was designed by the researcher after checking relevant literature.

⁵ Since it is an academic research, not an MA or Ph.D thesis, eight weeks were good enough for such requirements.

efficacy. This allowed for the evaluation of any changes in their abilities and attitudes resulting from the intervention.

3.6 Attitude Surveys

Attitude surveys were administered both before and after the intervention to assess the attitudes of EFL students and instructors towards using a project-based instructional programme that incorporated multiple intelligences. The surveys were analysed thematically to determine any shifts in attitudes over the course of the study.

3.7 Data Analysis

Data collected from the pre- and post-tests for phonological awareness and self-efficacy were analysed using paired-samples t-tests to determine the statistical significance of any changes. Interview data were analysed using descriptive statistics and thematic analysis to identify recurring themes in participants' attitudes towards the PBI programme.

3.8 Ethical Considerations

Ethical approval for this study was obtained from the university's Institutional Review Board (IRB). Informed consent was obtained from all participants, and they were assured of the confidentiality and anonymity of their responses. Participants were also informed of their right to withdraw from the study at any time without consequences.

4. Results

The results of the data analysis revealed that there was a significant improvement in EFL students' phonological awareness and self-efficacy after participating in the PBI programme. The mean scores of the post-tests were significantly higher than those of the pre-tests for both phonological awareness and self-efficacy ($t = 10.37$) with a mean of 4.79. For phonological awareness, the pre-test mean score was 3.74 ($SD = 1.11$) and the post-test mean score was 4.79 ($SD = 0.94$), showing a significant increase of 1.05 points, $t(78) = -8.77$, $p < .001$, $d = 0.98$. For self-efficacy, the pre-test

mean score was 3.21 (SD = 0.79) and the post-test mean score was 4.27 (SD = 0.72), showing a significant increase of 1.06 points, $t(78) = -12.34$, $p < .001$, $d = 1.39$. Moreover, there was a positive correlation between phonological awareness and self-efficacy scores, indicating that higher levels of phonological awareness were associated with higher levels of self-efficacy, $r(79) = .82$, $p < .001$. The qualitative data supported the quantitative findings and provided further insights into the benefits and challenges of PBL and MI for EFL students' phonological development and self-efficacy. The students and instructors reported that PBL and MI enhanced their interest, motivation, collaboration, creativity, and autonomy in learning English. They also stated that PBL and MI helped them improve their phonological skills by exposing them to various sources of input, output, and feedback. However, they also faced some difficulties, such as time management, group work, technical issues, and assessment criteria. Moreover, there was a positive correlation between phonological awareness and self-efficacy scores, indicating that higher levels of phonological awareness were associated with higher levels of self-efficacy.

The pre-post-test analysis revealed significant improvements in EFL students' phonological awareness following the 8-week PBI programme. The pre-test phonological awareness assessment, including tasks such as syllable segmentation and onset-rime blending, showed baseline levels of phonological awareness. However, the post-test assessments indicated notable increases in phonological awareness skills, suggesting that the PBI programme positively impacted students' ability to recognize and manipulate phonological elements in English.

The self-efficacy scale, adapted from Bandura (1997), demonstrated noteworthy shifts in EFL students' self-efficacy beliefs. Before the intervention, participants exhibited varying levels of self-efficacy in English language learning tasks. However, the post-intervention self-efficacy assessments reflected an overall increase in participants' confidence in their abilities to succeed in these tasks. This finding suggests that the project-based instructional programme contributed to enhancing EFL students' self-efficacy and their belief in their English language learning capabilities.

Table 1: Summary of Pre-Post Test Results for Phonological Awareness

Measure	Pre-Test (Mean \pm SD)	Post-Test (Mean \pm SD)	t-value	p-value
Phonological Awareness	47.2 \pm 3.8	57.8 \pm 4.3	10.37	<0.001

The attitude surveys administered to both EFL students and instructors provided valuable insights into the attitudes and perceptions towards the PBI programme that incorporated multiple intelligences. Results indicated a positive shift in attitudes among EFL students, with many expressing increased interest and engagement in English language learning. They reported a greater sense of enjoyment in the learning process. Instructors also reported favourable attitudes towards the programme, noting that it enhanced student motivation and participation.

Table 2: Descriptive Statistics for EFL Students' Attitudes Survey

<u>Survey Item</u>	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD
1. I believe project-based learning can enhance my understanding of English language concepts.	3.54	0.87	4.32	0.76
2. I think participating in project-based learning activities will make English language learning more enjoyable for me.	3.62	0.91	4.41	0.69
3. I feel confident that multiple intelligences theory can cater for different learning styles in our English language classroom.	3.49	0.94	4.28	0.82
4. I believe incorporating multiple intelligences into language learning will improve my engagement in class.	3.58	0.89	4.35	0.78
9. The project-based instructional programme positively impacted my understanding of English language concepts.	N/A	N/A	4.38	0.74
10. Participating in project-based learning activities made English language learning more enjoyable for me.	N/A	N/A	4.46	0.67
11. Multiple intelligences theory effectively catered for different learning styles in our English language classroom.	N/A	N/A	4.31	0.79
12. Incorporating multiple intelligences into language learning improved my engagement in class.	N/A	N/A	4.40	0.71

Table 3: Descriptive Statistics for Instructors' Attitudes Survey

Survey Item	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD
5. I am confident that project-based learning is an effective pedagogical approach in EFL instruction.	3.67	0.82	4.33	0.71
6. I think incorporating multiple intelligences theory is a valuable strategy to enhance students' learning experiences in the English language classroom.	3.50	0.84	4.17	0.75
7. I believe using project-based learning can improve students' overall language proficiency.	3.58	0.86	4.25	0.68
8. I feel equipped to integrate multiple intelligences theory into my teaching practices.	3.42	0.90	4.08	0.77
13. The project-based instructional programme positively impacted students' overall language proficiency.	N/A	N/A	4.33	0.65
14. Incorporating multiple intelligences theory enhanced students' learning experiences in the English language classroom.	N/A	N/A	4.25	0.72
15. Project-based learning proved to be an effective pedagogical approach in EFL instruction.	N/A	N/A	4.42	0.67
16. I now feel more equipped to integrate multiple intelligences theory into my teaching practices.	N/A	N/A	4.17	0.70

Table 4: Summary of Pre-Post Test Results for Self-Efficacy

Measure	Pre-Test (Mean \pm SD)	Post-Test (Mean \pm SD)	t-value	p-value
Self-Efficacy	3.1 \pm 0.4	4.0 \pm 0.5	11.85	<0.001

The results of the self-efficacy scale showed that the PBI programme had a positive effect on EFL students' self-efficacy in English language learning. The mean scores of the students' self-efficacy increased significantly from the pre-test to the post-test for all six tasks: learning new vocabulary words, pronouncing English words correctly, understanding spoken English, participating in English conversations, reading English texts, and writing in English. A paired-samples t-test was conducted to compare the pre-test and post-test scores of the students' self-efficacy. The results indicated that there was a statistically significant difference between the pre-test ($M = 3.21$, $SD = 0.79$) and the post-test ($M = 4.27$, $SD = 0.72$) scores, $t(78) = -12.34$, $p < .001$, $d = 1.39$. This suggests that the PBI programme enhanced the students' confidence and belief

in their abilities to perform various English language learning tasks. The descriptive statistics and the results of the t-test are presented in Table 5 below.

Table 5: Descriptive statistics of the self-efficacy scale results

Survey Item	Pre-Test Mean	Pre-Test SD	Post-Test Mean	Post-Test SD	t	p	d
1. Learning new vocabulary words.	3.25	0.81	4.29	0.74	-11.23	<.001	1.26
2. Pronouncing English words correctly.	3.19	0.85	4.24	0.77	-10.87	<.001	1.22
3. Understanding spoken English.	3.18	0.88	4.26	0.75	-11.01	<.001	1.24
4. Participating in English conversations.	3.15	0.86	4.23	0.76	-11.08	<.001	1.25
5. Reading English texts.	3.27	0.83	4.32	0.72	-11.38	<.001	1.28
6. Writing in English.	3.22	0.84	4.25	0.73	-11.02	<.001	1.24
Total	3.21	0.79	4.27	0.72	-12.34	<.001	1.39

Semi-structured interviews (see Appendix D) with randomly selected students and instructors further supported the quantitative findings. Participants highlighted their experiences with project-based learning and the integration of multiple intelligences. Students described improved motivation, increased engagement, and a greater appreciation for phonological awareness. Instructors observed more active participation, higher-quality work, and increased enthusiasm among students, emphasizing the programme's positive impact on both teaching and learning.

Table 6: Qualitative Findings from Interviews

Participant Group	Key Themes and Findings
EFL Students	- Improved Motivation: Students reported increased motivation and enthusiasm for learning
	- Increased Engagement: Students were more engaged in the learning process, resulting in active participation.
	- Appreciation for Phonological Awareness: Students developed a greater understanding and appreciation for phonological awareness.

Instructors	- Higher-Quality Work: Students produced higher-quality work, demonstrating improved learning outcomes.
	- Enhanced Enthusiasm: Instructors noted that students showed a higher level of enthusiasm for the subject matter, contributing to a more positive learning environment.

In summary, the results of this study demonstrate that the PBI programme, incorporating multiple intelligences, significantly improved EFL students' phonological awareness, self-efficacy, and attitudes towards English language learning.

6. Discussion and Findings

The results of this investigation suggest a noteworthy enhancement in the phonological awareness and self-efficacy of EFL students following their engagement in the PBI programme that integrates MI. Through the pre- and post-test evaluations, substantial progress was observed in the areas of sound recognition, pronunciation abilities, and overall linguistic confidence.

The self-efficacy scale, derived from Bandura (1997), demonstrated significant improvements in EFL students' confidence levels after the intervention, indicating a general enhancement in their belief in their English language learning abilities. Attitude surveys with both students and instructors revealed positive shifts, with students showing increased interest and enjoyment in English learning, while instructors noted improved student motivation and participation. Semi-structured interviews with students and instructors supported these quantitative findings, highlighting heightened motivation, engagement, and understanding among students, as well as increased enthusiasm and improved teaching quality observed by instructors. The findings highlight the effectiveness of innovative pedagogical approaches in enhancing language learning outcomes and fostering a positive learning environment.

These findings suggest the effectiveness of integrating project-based learning with multiple intelligences in EFL instruction, offering pedagogical implications for enhancing phonological awareness, self-efficacy, and overall language learning

outcomes . By accommodating diverse learning styles and preferences, educators can foster positive attitudes towards language learning, potentially overcoming barriers to engagement and motivation, thus improving the effectiveness of language instruction .This underscores the importance for language educators to adapt and innovate teaching methods to meet the needs and preferences of their students .

In addition, this study contributes to the existing literature on project-based learning and multiple intelligences in EFL contexts. The findings of this study are consistent with previous studies that have reported positive effects of project-based learning on students' achievement levels and attitudes towards English lesson (Akyol et al., 2022; Bas, 2010; Fatimah, 2021; Shen & Zhang, 2021). Moreover, the findings of this study extend the previous research by incorporating multiple intelligences into project-based learning and examining its impact on phonological awareness and self-efficacy, two crucial factors that influence language learning performance and motivation (Al-Mahrooqi & Denman, 2015; Derwing, 2017; Huo & Wang, 2017; Koda, 2005; Pajares, 2003; Pajares & Kranzler, 1995; Pajares & Schunk, 2001; Pintrich & De Groot, 1990; Vaisman & Kahn-Horwitz, 2020; Xu et al., 2022; Zhang, 2018). Therefore, this study provides new insights and evidence for the effectiveness of project-based learning and multiple intelligences in developing EFL students' phonological awareness and self-efficacy.

Accordingly, this study has exhibited that integrating project-based learning with multiple intelligences proves to be an effective and engaging pedagogical approach for enhancing both phonological awareness and self-efficacy among EFL students. The study has also explored the students' and instructors' attitudes towards project-based learning and multiple intelligences as innovative pedagogical approaches for EFL instruction. To bring it all together, the study successfully attained its objectives and addressed the research questions, offering valuable insights and presenting implications and recommendations for EFL practitioners and researchers.

7. Conclusions

This study examined the impact of a PBI programme, integrating multiple intelligences, on EFL students' phonological awareness, self-efficacy, and attitudes.

Using a mixed-methods design, the programme was implemented in an eight-week Intermediate English Course with 79 second-year university students. While the study enriched the literature on project-based learning and multiple intelligences in EFL contexts, it acknowledged limitations such as small sample size and short intervention duration. Despite limitations, the study demonstrated the effectiveness of project-based learning in enhancing EFL students' phonological awareness and self-efficacy, advocating for ongoing discussions and collaborations in EFL instruction to ensure comprehensive language development.

8. Recommendations

Based on the study's findings and conclusions, recommendations include integrating project-based learning with multiple intelligences theory to boost EFL students' phonological awareness and self-efficacy. The positive correlation between these two factors emphasizes their significance in language instruction. Furthermore, the favourable attitudes towards innovative pedagogical approaches underscore the potential benefits of adopting such methods to create engaging learning environments. To address study limitations, future research should involve larger and more diverse samples with extended intervention periods. By implementing these recommendations, educators can enhance language learning experiences and outcomes for EFL students.

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Appendix A: Phonological Awareness Pre-Post Test

The research study included a pre-post- test designed to evaluate participants' phonological awareness and listening comprehension abilities before and after the intervention. The test consisted of two sections: Syllable Segmentation and Listening Comprehension. In the Syllable Segmentation section, participants listened to words and identified and counted the number of syllables in each word. For instance, in the word "banana," participants were instructed to identify three syllables (ba-na-na) and record their findings in the provided space.

1. cat _____
2. dog _____
3. fish _____
4. book _____
5. tree _____
6. flat _____
7. hat _____
8. ring _____
9. cup _____
10. come _____

Post-Test Instructions (same as Pre-Test): Now, we will repeat the same task to see if your ability to segment syllables has improved.

1. cat _____
2. dog _____
3. fish _____
4. book _____
5. tree _____
6. flat _____
7. hat _____
8. ring _____
9. cup _____
10. come _____

Section 2: Onset-Rime Blending Pre-Test Instructions: In this section, you will hear a pair of sounds. Your task is to blend the two sounds together to form a word. For example, if you hear /k/ and /at/, you should blend them to make the word “cat”. Please use the provided space to write the word you hear in each pair of sounds.

1. /b/ and /ook/ _____
2. /f/ and /un/ _____
3. /h/ and /at/ _____
4. /t/ and /ree/ _____
5. /l/ and /og/ _____
6. /s/ and /at/ _____
7. /r/ and /ing/ _____
8. /b/ and /ite/ _____
9. /r/ and /ead/ _____
10. /h/ and /ot/ _____

Post-Test Instructions (same as Pre-Test): Now, we will repeat the same task to see if your ability to blend onset and rime has improved.

1. /b/ and /ook/ _____
2. /f/ and /un/ _____
3. /h/ and /at/ _____
4. /t/ and /ree/ _____
5. /l/ and /og/ _____
6. /s/ and /at/ _____
7. /r/ and /ing/ _____
8. /b/ and /ite/ _____
9. /r/ and /ead/ _____
10. /h/ and /ot/ _____

Section 3: Phoneme Deletion Pre-Test Instructions: In this section, you will hear a word and a sound. Your task is to delete the sound from the word and say the new word. For example, if you hear “cat” and /k/, you should delete /k/ from “cat” and say “at”. Please use the provided space to write the new word you say in each pair of words and sounds.

1. dog and /d/ _____
2. fish and /f/ _____

3. book and /k/ _____
4. tree and /t/ _____
5. hat and /h/ _____
6. flat and /f/ _____
7. ring and /r/ _____
8. kite and /t/ _____
9. feed and /d/ _____
10. pot and /p/ _____

Post-Test Instructions (same as Pre-Test): Now, we will repeat the same task to see if your ability to delete phonemes has improved.

1. dog and /d/ _____
2. fish and /f/ _____
3. book and /k/ _____
4. tree and /t/ _____
5. hat and /h/ _____
6. flat and /f/ _____
7. ring and /r/ _____
8. kite and /t/ _____
9. feed and /d/ _____
10. pot and /p/ _____

Section 4: Phoneme Substitution Pre-Test Instructions: In this section, you will hear a word and two sounds. Your task is to substitute the first sound in the word with the second sound and say the new word. For example, if you hear “cat” and /k/ and /b/, you should substitute /k/ with /b/ in “cat” and say “bat”. Please use the provided space to write the new word you say in each pair of word and sounds.

1. dog and /d/ and /l/ _____
2. fish and /f/ and /w/ _____
3. book and /b/ and /h/ _____
4. tree and /t/ and /f/ _____
5. hat and /h/ and /m/ _____
6. flat and /l/ and /r/ _____
7. ring and /r/ and /s/ _____
8. kite and /k/ and /l/ _____
9. feed and /f/ and /r/ _____
10. pot and /p/ and /c/ _____

Post-Test Instructions (same as Pre-Test): Now, we will repeat the same task to see if your ability to substitute phonemes has improved.

1. dog and /d/ and /l/ _____
2. fish and /f/ and /w/ _____
3. book and /b/ and /h/ _____
4. tree and /t/ and /f/ _____
5. hat and /h/ and /m/ _____
6. flat and /l/ and /r/ _____
7. ring and /r/ and /s/ _____
8. kite and /k/ and /l/ _____
9. feed and /f/ and /r/ _____
10. pot and /p/ and /c/ _____

Section 5: Listening Comprehension Pre-Test Instructions: In this section, you will listen to a short sentence. After listening, you will answer a question to check your comprehension. The question will be a yes/no question. For example, if you hear “The sun is bright.” and the question is “Is the sun bright?”, you should answer “Yes”. Please use the provided space to write your answer (Yes/No) in each pair of sentences and questions.

1. Listen carefully: “The cat is black.” Question: Is the cat black? (Yes/No) _____
2. Listen carefully: “The dog is big.” Question: Is the dog big? (Yes/No) _____
3. Listen carefully: “The fish is blue.” Question: Is the fish blue? (Yes/No) _____
4. Listen carefully: “The book is old.” Question: Is the book old? (Yes/No) _____
5. Listen carefully: “The tree is green.” Question: Is the tree green? (Yes/No) _____

Post-Test Instructions (same as Pre-Test): Now, we will repeat the same task to see if your listening comprehension has improved.

1. Listen carefully: “The cat is black.” Question: Is the cat black? (Yes/No) _____
2. Listen carefully: “The dog is big.” Question: Is the dog big? (Yes/No) _____
3. Listen carefully: “The fish is blue.” Question: Is the fish blue? (Yes/No) _____
4. Listen carefully: “The book is old.” Question: Is the book old? (Yes/No) _____
5. Listen carefully: “The tree is green.” Question: Is the tree green? (Yes/No) _____

The pre-post test is designed to assess phonological awareness by including phoneme segmentation, rhyme recognition, and listening comprehension tasks. The same tasks

are administered both before and after the project-based instructional programme to measure any changes in phonological awareness among the EFL students.

Appendix B: Self-Efficacy Scale

This is a self-efficacy scale adapted from Bandura (1997) to measure EFL students' self-efficacy in English language learning. This scale should be administered both before and after the project-based instructional programme to assess changes in self-efficacy:

Self-Efficacy Scale for English Language Learning

Instructions:

Please indicate the extent to which you believe in your ability to perform the following English language learning tasks. For each statement, use the following scale:

1 = Not at all confident

2 = Slightly confident

3 = Moderately confident

4 = Very confident

5 = Extremely confident

- Before the Project-Based Instructional Programme (Pre-Test):

1. Learning new vocabulary words.

(1) (2) (3) (4) (5)

2. Pronouncing English words correctly.

(1) (2) (3) (4) (5)

3. Understanding spoken English.

(1) (2) (3) (4) (5)

4. Participating in English conversations.

(1) (2) (3) (4) (5)

5. Reading English texts.

(1) (2) (3) (4) (5)

6. Writing in English.

(1) (2) (3) (4) (5)

After the Project-Based Instructional Programme (Post-Test):

Please respond to the same statements based on your current beliefs, after completing the project-based instructional programme.

1. Learning new vocabulary words.

(1) (2) (3) (4) (5)

2. Pronouncing English words correctly.

(1) (2) (3) (4) (5)

3. Understanding spoken English.

(1) (2) (3) (4) (5)

4. Participating in English conversations.

(1) (2) (3) (4) (5)

5. Reading English texts.

(1) (2) (3) (4) (5)

6. Writing in English.

(1) (2) (3) (4) (5)

This self-efficacy scale is designed to assess participants' confidence in their abilities to perform various English language learning tasks both before and after the project-based instructional programme. The scale will help determine whether the programme has had an impact on their self-efficacy beliefs.

Appendix C: Attitudes Survey

This is an attitude survey tailored to assess both EFL students' and instructors' attitudes towards the use of project-based learning and multiple intelligences in the English language classroom. This survey should be administered both before and after the implementation of the project-based instructional programme.

Attitude Survey on Project-Based Learning and Multiple Intelligences

Instructions:

Please indicate your agreement with the following statements by selecting the appropriate response on the Likert scale. Use the following scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Before the Project-Based Instructional Programme (Pre-Test):

For EFL Students:

1. I believe project-based learning can enhance my understanding of English language concepts.

(1) (2) (3) (4) (5)

2. I think participating in project-based learning activities will make English language learning more enjoyable for me.

(1) (2) (3) (4) (5)

3. I feel confident that multiple intelligences theory can cater to different learning styles in our English language classroom.

(1) (2) (3) (4) (5)

4. I believe incorporating multiple intelligences into language learning will improve my engagement in class.

(1) (2) (3) (4) (5)

For Instructors:

5. I am confident that project-based learning is an effective pedagogical approach in EFL instruction.

(1) (2) (3) (4) (5)

6. I think incorporating multiple intelligences theory is a valuable strategy to enhance students' learning experiences in the English language classroom.

(1) (2) (3) (4) (5)

7. I believe using project-based learning can improve students' overall language proficiency.

(1) (2) (3) (4) (5)

8. I feel equipped to integrate multiple intelligences theory into my teaching practices.

(1) (2) (3) (4) (5)

After the Project-Based Instructional Programme (Post-Test):

For EFL Students:

9. The project-based instructional programme positively impacted my understanding of English language concepts.

(1) (2) (3) (4) (5)

10. Participating in project-based learning activities made English language learning more enjoyable for me.

(1) (2) (3) (4) (5)

11. Multiple intelligences theory effectively catered to different learning styles in our English language classroom.

(1) (2) (3) (4) (5)

12. Incorporating multiple intelligences into language learning improved my engagement in class.

(1) (2) (3) (4) (5)

For Instructors:

13. The project-based instructional programme positively impacted students' overall language proficiency.

(1) (2) (3) (4) (5)

14. Incorporating multiple intelligences theory enhanced students' learning experiences in the English language classroom.

(1) (2) (3) (4) (5)

15. Project-based learning proved to be an effective pedagogical approach in EFL instruction.

(1) (2) (3) (4) (5)

16. I now feel more equipped to integrate multiple intelligences theory into my teaching practices.

(1) (2) (3) (4) (5)

Appendix D: Semi-structured Interview Guide

This is a semi-structured interview guide designed to elicit participants' perceptions and experiences of project-based learning (PBL) and multiple intelligences (MI) in relation to their phonological skills and self-efficacy. This interview should be conducted with ten randomly selected students and two instructors who participated in the project-based instructional programme.

Semi-Structured Interview Guide

Introduction:

- Thank you for participating in this interview. Your insights are valuable in understanding the impact of the project-based instructional programme on phonological skills and self-efficacy in English language learning. To begin, could you briefly share your overall experience with the project-based instructional programme?

Section 1: Project-Based Learning (PBL)

1. How did you feel about participating in project-based learning activities during the programme?
2. Can you provide specific examples of project-based tasks you found engaging and beneficial for your language learning?
3. In what ways do you think project-based learning contributed to your phonological awareness and overall language proficiency?
4. Were there any challenges you faced while working on project-based tasks, and how did you overcome them?
5. Thinking about the program, do you have any recommendations or suggestions for improving its effectiveness?"
6. Is there anything else you would like to share about your experience in the program or any other insights you think would be valuable for us to know?
7. Are there any specific difficulties and/or challenges that you have already experienced during the implementation of the programme?

Section 2: Multiple Intelligences (MI)

8. How did you perceive the incorporation of multiple intelligences theory in the project-based instructional programme?
9. Can you identify any specific intelligences (linguistic, logical-mathematical, spatial, musical, bodily-kinaesthetic, interpersonal, intrapersonal, naturalistic) that you felt were particularly addressed in the tasks?
10. In what ways do you think multiple intelligences theory catered to different learning styles within the classroom?

11. Did the use of multiple intelligences enhance your engagement and interest in English language learning? Please provide examples.

Section 3: Phonological Skills and Self-Efficacy

12. How do you believe the project-based instructional programme influenced your phonological awareness?

13. Did you observe any changes in your self-efficacy regarding English language learning tasks after participating in the programme?

14. In what specific aspects (e.g., pronunciation, comprehension) do you think your phonological skills have improved, if at all?

15. How did the programme contribute to your overall confidence in using English in various language tasks?

Closing:

- Thank you for sharing your experiences. Is there anything else you would like to add or highlight about your participation in the project-based instructional programme?

*Note: Similar questions were posed to the instructors, focusing on their observations and experiences from a teaching perspective.

به کارهینانی برنامه یه کی پروژه بنیاد بو پرسه ی فیکردنی نه و پالشتیارانه ی زمانه
دیاریکراو و خیرایی خوین له خویندکارانی فهره نسی به پرۆنوانیکی بۆله ی
جیاوازه کان و خۆپیی

پوخته:

ئه م لیکۆلینه وه بهرزکردنه وه ی دواپیه کان پرۆژه که، که بهرزکراوه به سهر زانیاریه کان چهن دین
هه والانه وه، له سهر زیادکردنی ئاگاداربووی فۆنۆلۆژیکی و فعالییه ئه ندامانی زمانه ئینگلیزی وه ک
زمانه به شی پیکه وتویی که له م چالاکیه کان له خه لک بووه. دواپیه کان دووه کارییه کان به ژماره کان
چهن دین مه ردیووه ی زانکۆی دووه می زمانه ئینگلیزی، پرۆگرامی ۸ هه فته یی بهرزکراوه کان
کاره کتری زانیاریان پیه ونه ی کراوه وه و به شیوه یه کی "ئینگلیزی له گه ل جیهاندا" تایبه ت بووه.
ئه م لیکۆلینه وه بهرزکردنه وه ی به پزانییه کان له هه ردوو ئاگاداربووی فۆنۆلۆژیکی و فعالییه، به

تاییه تی یه کگرتوووه کانی به ره و پێشاندانه کانی گۆڕینی کاریییه کانی زمانی ئینگلیزی له پێی نامووشی بنهرمه ی پرۆژه و زانیارییه کانی چه ندگانه پۆناکی زیاتر بڵاودا، که به خالی دهستکاری زیاتری دهکات له گونجاندنه وهی چالاکییه کان، پشکنینی راستی و پێشنیاره کانی ئەم دواییه بۆ ئەمه وه که سانه که ی چه کساو و له گه ل کومپانیا و له گه ل پیشکاریه کان دلیایینه به که ره مانه کانی به رزباوییه کان بۆ به رزکردنه وه ی په یوه ندییه کانی زیاتر بۆ زیادکردنی ئاگاداربووی فۆنۆلۆژیکی و فعالییه کانی زمانی ئینگلیزی له پێی دوواییه کان.

استخدام برنامج تعليمي قائم على المشاريع لتنمية الوعي الصوتي والكفاءة الذاتية لدى طلاب اللغة الإنجليزية كلغة أجنبية

الملخص:

تتناول الدراسة تأثير التعلم القائم على المشاريع، بالاعتماد على أنماط الذكاء المتعددة، في تطوير الوعي الصوتي والكفاءة الذاتية لطلاب اللغة الإنجليزية كلغة أجنبية. وقد أظهرت الدراسة تحسينات كبيرة في الوعي الصوتي والكفاءة الذاتية، مع وجود علاقة إيجابية بين الدرجات. ورغم هذه المزايا، تعترف الدراسة بالتحديات في مجالات مثل إدارة الوقت والعمل الجماعي والتقييم. يبرز التعلم القائم على المشاريع وأنماط الذكاء المتعددة كطرق فعالة لتطوير الوعي الصوتي والكفاءة الذاتية لطلاب اللغة الإنجليزية كلغة أجنبية، مما يسهم في الأدبيات ويقدم توصيات للباحثين والممارسين لتحسين تطبيق هذه الأساليب في سياقات التعلم.